ABSTRACT OF

The Hunterian Lectures

ON

SOME POINTS IN THE ANATOMY AND PATHOLOGY OF THE VERMIFORM APPENDIX.

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BY W. McADAM ECCLES, M.S. LOND., F.R.C.S. ENG.,

HUNTERIAN PROFESSOR OF SURGERY, ROYAL COLLEGE OF SURGEONS OF ENGLAND; ASSISTANT SURGEON TO ST. BARTHOLOMEW'S HOSPITAL; LATE SENIOR ASSISTANT SURGEON TO THE WEST LONDON HOSPITAL; ASSISTANT SURGEON TO THE CITY OF LONDON TRUSS SOCIETY, ETC.

LECTURE I.

Delivered on Feb. 9th.

MR. PRESIDENT AND GENTLEMEN,—I almost owe you an apology for bringing to your notice a few points, hardly any of which, I fear, are very novel, on the subject of the vermiform appendix. In spite of the widespread attention which has of recent years been given to this lymphoid appendage there is still a very considerable difference of opinion on many points connected with its anatomy and physiology, to say nothing of the pathological conditions associated with it. By so much has our knowledge of the organ and its lesions been increased that it would seem that there is but little left to be added to the sum, yet it is perhaps at just such a stage of experience that it is well to gather together some of the important facts in lectures such as these. I shall not allude in detail to all the well-known statements concerning its gross anatomy but only to some which, however simple and apparently obvious, are sometimes lost sight of.

GROSS ANATOMY OF THE APPENDIX.

First, let it be remembered that the vermiform appendix is wholly an intra-peritoneal organ, using this term in the sense in which it is generally employed—that is to say, it is always suspended by a fold of peritoneum—the meso-appendix—in a manner similar to a loop of intestine, while its extreme tip is usually quite free. The obvious deduction from this elementary fact is that the appendix cannot be approached by any route whatever which does not transgress the peritoneal cavity—in other words, one in which the parietal layer of peritoneum is always incised.

Dr. R. J. A. Berry[1] has very carefully worked out the varieties of the attachment, form, and relations of the meso-appendix. Briefly he summarises the differences in the descriptions given by various authors as follows: "These are, first, the shape of the meso-appendix, whether triangular or quadrilateral; and secondly, its relations to the vermiform appendix, whether a complete or an incomplete investment for that organ." From a careful review of the fold in 100 cases he comes to the following conclusions: "The meso-appendix is a double fold of peritoneum which entirely surrounds the vermiform appendix, constituting its mesentery. Though generally of a triangular aspect it is always quadrilateral in outline—that is to say, four borders can always be described, though one border may be so short as to give one the impression that the structure is triangular. ..... In most cases the mesentery can be demonstrated to the naked eye extending along the whole length of the appendix, and in those cases where the meso-appendix appears only to extend midway along the appendix microscopic examination will conclusively prove that a peritoneal covering is investing the whole length of the appendix." While from a personal examination of over 50 normal appendices I can fully indorse all that Dr. Berry affirms, I think that he partly loses sight of the pathological and, therefore, surgical, significance of the fact that the breadth of the fold constituting the meso-appendix may vary very much. Thus undoubtedly in a large number of cases the meso-appendix as a distinctly quadrilateral fold extends the whole length, or nearly the whole length, of the appendix, but, on the other hand, there is no inconsiderable minority of instances in which it does not reach as such a fold to the termination of the tube. It is because of this shortened attachment of an actual fold that the appendix is so frequently curved or bent upon itself and it is by no means unusual for a division of the meso-appendix to be required in order to straighten out the tube. Away then must go all the statements of operating upon the appendix extra-peritoneally.

A second fact is the direct communication with the cæcum proper. This connexion is merely, as it were, a safety-valve against explosion and not in the vast majority of cases the entrance through which an irritant foreign body passes into the tube. It is frequently after this communicating aperture has become abnormally closed that trouble ensues rather than when it is unusually patent. The calibre of this aperture, while amply sufficient in its natural state to allow the free evacuation of secretion from the mucous membrane of the tube itself, is not great enough to permit the entrance into the lumen of the appendix of bodies of considerably smaller dimensions than those which have been said to have passed through it.

The position of the aperture is interesting and so is also its relation to the axis of the tube. Too little attention has perhaps been paid to the fact that the passage from the cæcum into the appendicular canal is, as it were, hidden away under the loose folds of mucous membrane which surround it; indeed, in some instances it is difficult to determine its position. This is obviously very different from the character of the larger adjacent opening—the ileo-cæcal—which guarded rather than obscured by the folds constituting the ileo-cæcal valve, is very apparent, for the ileo-cæcal junction appears prominent as if somewhat telescoped into the cavity of the large intestine, while that of the appendix is depressed and may have to be searched for. As a general rule the relative position of these two apertures is that the orifice of the vermiform appendix is some 2·5 to 3·5 centimetres inferior and posterior to the ileo-cæcal. Then, again, in at least two of the fairly common positions of the appendix—namely, when lying upwards and inwards or directly upwards—its orifice is in reality, at any rate, in the upright position, at the most dependent part of the tube, and this facilitates the exit of secretion and hinders the entrance of extraneous material. But it must be here remarked that the foregoing meets with an exception in the case of bacteria which, as it were, creep along the surface of the mucous membrane lining the entrance to the tube, and also of intestinal worms, which occasionally glide over the surface into the tube. It is wonderful how the various pointed foreign bodies found within the lumen of the tube have discovered the narrow aperture, cast around as it is with everything that would seem to block their way.

A third subject of extreme interest and importance is the position of the appendix within the abdomen. To guess correctly where the tip of the appendix lies in any given case, without exposing it, is well-nigh impossible. To state that such-and-such a position is the *normal* one for the appendix is only to make oneself liable to have the statement completely overthrown by the next observer. The cæcum with its vermiform appendage only reaches its common habitat in the right iliac region after a considerable route of migration, and this fact is quite sufficient in itself to lead to very different relations of the organ. It is probable that in a small number of instances the cæcum has not fully reached the right iliac region even at birth and may continue its journey for some months after intra-uterine life. Thus there are on record instances in which the vermiform appendix has been discovered lying close beneath the liver and even behind the right lobe of the same gland (Fig. 1).

With regard to what may be conveniently termed the normal positions there are three in which the appendix generally lies:—1. Pointing upwards and inwards towards the region of the spleen. This may be described as being the north-east position. 2. Pointing downwards and inwards over the brim of the true pelvis. This may be described as being the south-east position. 3. Pointing directly upwards behind the cæcum. This may be described as being the due north position. Various authors state differently as to which of these three is the most usual position. Personally, from the observation of nearly 200 cases in the dissecting-room and post-mortem room, I am convinced that a direction upwards and inwards behind the inner part of the cæcum,

[1] The Cæcal Folds and Fossæ, 1897, p. 25.

or the junction of the ileum and the cæcum, is that assumed by the appendix in more than half of the cases, while that in which it lies over the brim of the pelvis, generally with an inclination distinctly inwards as well as downwards, is the next most common. Lying directly upwards behind the cæcum is not so very uncommon and in this site pus, if

FIG. 1.

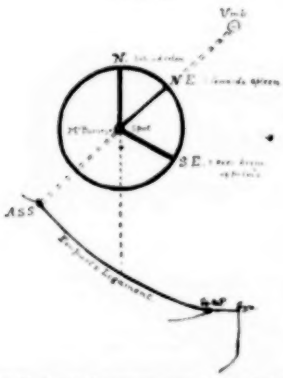


Diagram to illustrate the common positions of the appendix.

present, is difficult to reach by the usual anterior incision and the propriety of lumbar drainage arises. It must be well known to all who are in the habit of palpating the right iliac fossa, particularly when the cæcum is nearly empty, that it is common to detect an elongated body, not unlike an enlarged appendix, felt through the thickness of the abdominal wall. This may not infrequently be felt when there is no suspicion of disease of the appendix and in such instances it cannot be attributed to the tube itself. In nearly every case in which I have personally palpated this structure, and have asked others to confirm its presence, it has been felt running obliquely downwards and inwards and could be made to roll under the tips of the examining fingers.

Like so many other conditions in connexion with abdominal palpation, the question arises as to whether the structure felt lies in the abdominal wall or within the abdominal cavity. Sir Frederick Treves when discussing the fact gives it as his opinion that it is produced by a portion of contracted muscle, probably rectus, stating as an argument in favour of it that the muscle and the deeper, possibly diseased, parts which are irritated by the palpation, are both supplied by the same spinal nerves. I am inclined, however, to think that, in some cases at least, it is the anterior longitudinal muscular band of the cæcum contracting under the stimulating effect of the pressure of the examining fingers.

MICROSCOPIC ANATOMY OF THE APPENDIX.

A great deal has been written on this subject, but even now there are several disputed points to be cleared up.

That the histology of the tube differs considerably at various periods of life is a well-recognised fact. First note the presence of the lymphoid tissue in the submucosa, or, as I prefer to term it, the lympho-mucosa. It has been shown by Dr. Berry that the apex of the cæcum of those animals which do not possess an appendix contains a quantity of lymphoid tissue and this he believes to be the homologue of the appendix vermiformis of the higher apes and man. This is probably true and while bearing upon the comparative anatomy of the organ it also gives a hint as to its function. From the comparatively enormous development of the lymphoid tissue in the submucosa of the appendix some have deemed it justifiable to term this little appendage the "intestinal tonsil." As lymphoid tissue in all parts of the body is most pronounced and active in the young, so the same holds good for the lymphoid masses in the appendix. In the infant they form almost a continuous layer outside the muscularis mucosæ, while their globular or ovoid shape, their deep staining, and their number and size make them the most marked objects when a stained transverse section of the appendix from a young subject is examined by the naked eye. (Fig. 2.)

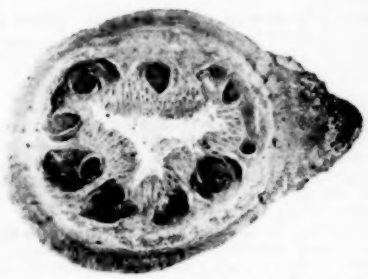
As a rule a distinct difference may be noted between the central and the peripheral parts of these follicles. The centre, which usually stains less deeply, appears to be composed of looser adenoid tissue than the outer portion, which latter stains very markedly. Not infrequently in sections made from perfectly normal appendices a distinct space may be found around the outer part of the follicle. At first on observing this I was inclined to consider it merely as a cleavage the result of faulty preparation, but I have met with it now in such a considerable number of sections that I consider that it truly represents a normal lymph channel. In a few instances, under a high power, I have made out a distinct endothelial lining which puts the question at rest. Lockwood, Clado, and others have demonstrated the same spaces and also look upon them as lymph sinuses.

Although these masses of lymphoid tissue persist throughout life yet they proportionately certainly become less as age advances and where the appendix has been the seat of inflammatory changes they may be very much lessened in size and in some instances may have almost completely disappeared. During an acute inflammation of the tube the lymphoid tissue is much involved and the various lymph spaces are greatly dilated.

CHARACTERS OF A NORMAL APPENDIX.

The question not infrequently arises as to what constitutes clinically a normal appendix. This is a question of great importance when the appendix is exposed in an operation undertaken for abdominal symptoms the origin of which is not fully evident. I believe that it is impossible to say that an appendix is absolutely "normal" without a microscopic examination of the tube, for what appears to be a "normal" organ on the outside may show evidence of disease if its interior and its mucous membrane be submitted to a closer examination. But it is possible to say whether or not an appendix is sufficiently healthy not to be excised. A

FIG. 2.



Transverse section of the appendix of an infant showing the ring of well-marked lymphoid follicles.

"normal" appendix should present the following characteristics:—

1. *Axis.*—There should be little, if any, actual twisting in the length of the organ. There is probably always some curving of the organ, but this should only be a gradual bend in the healthy tube, brought about probably by the attachment of the meso-appendix and the distribution of the appendicular artery. Any sharp kinking or any distinct coiling probably always indicates an abnormal condition.

2. *Colour.*—This should be yellow but with a pinkish tinge. The degree of yellowness depends upon the amount of subperitoneal fatty tissue, while the pink colouration is due to fine blood-vessels. No actual blood-vessels of any size should be noticeable. The appearance of such denotes their dilatation and therefore probably the presence of an inflammatory process. This is especially likely to be the case if vessels are seen in the form of enlarged venules tending to pass round the circumference of the tube.

3. *Consistence.*—A normal living appendix when first touched after exposure has an extremely significant feel. There is no suspicion of any hardness or stiffness, but it is soft and velvety. A little handling, particularly if this happens to be otherwise than gentle, or even the mere contact with cool air, causes an excitation of the muscular tissue and a corresponding hardening and shortening of the tube. It is important not to mistake this for true inflammatory induration. General or local undoubted hardness

present when the appendix is first fingered is indicative of a pathological condition.

4. *Surface.*—The surface of the serous covering of the appendix should normally be perfectly smooth and regular and there should be no adhesions other than those of a natural character. The whole length of the tube should be uniform in circumference except for a slight tapering at the distal extremity. Any sudden bulgings or enlargements suggest disease.

PHYSIOLOGY OF THE VERMIFORM APPENDIX.

Practically little or nothing is known concerning the physiology of the tube and it may be that its physiological functions are in reality insignificant, though they may have some bearing upon its pathology. There are two conflicting ideas as to its primary functions, one that it is entirely an absorptive organ, the other that it is purely an excretive gland. Probably the real truth lies in the statement that it is in part absorptive and in part excretive.

Further, it has been thought that it has to do with the production of sulphuretted hydrogen to aid in the antisepsis of the large intestine. There can be no doubt that the highly lymphatic character of the appendix seems to point to its absorptive function. The extremely well-marked lymphoid follicles and the large lymphatic spaces and channels both tend to make the assumption feasible that the appendix is chiefly concerned with absorption. Yet, on the other hand, there are some strong arguments against such a theory. Its absorbing surface is practically infinitesimal compared with that of the adjacent small and large intestine. Then, again, what is it to absorb? It is a very significant fact that it is well-nigh impossible even under pressure to distend the lumen of the appendix by distending the cæcum with fluid, exactly in the same way as it is not usual to be able to fill the lower end of the ileum from the colon. This conclusion is also corroborated by the fact that it is seldom or never the case that the lumen of the vermiform process is affected in those instances in which the cæcum has given way under the strain of distension arising from constriction of the large intestine on the distal side of the cæcum. Further, the lumen of the appendix is never a receptacle for meconium, so that it would not appear likely that the appendix often has any liquid contents, other than what it has itself secreted, to absorb.

Again, it is a point of interest that the action of the muscular fibres forming one of the coats of the tube tends, when they contract, to force its contents towards and into the cavity of the cæcum. That the mucus is here of assistance in lubricating hardened fæces and helping in their onward passage is past believing, for the contents of the normal cæcum, although designated "fæces," are not even semi-solid and therefore require no such help. I do not consider that there is evidence to justify the belief that the appendix produces sulphuretted hydrogen; in fact, the knowledge that the mucus contained within it is often entirely inodorous is greatly against the theory. Until, however, there is an accurate chemical analysis of the secretion it is impossible to be sure as to whether it may not have some function in the economy.

LECTURE II.

Delivered on Feb. 11th.

ETIOLOGY OF INFLAMMATION.

MR. PRESIDENT AND GENTLEMEN,—Can an inflammation of the appendix sufficient to excite symptoms ever be of a non-bacterial nature? I would venture to answer this question decidedly in the negative. It is my firm belief that every instance of so-called appendicular colic, slight appendicitis, catarrh of the appendix, and a number of other conditions designated by like somewhat vague terms, is in truth dependent upon an actual inflammation of the appendix and that with a bacterial origin.

I am perfectly willing to admit that in some, perhaps many, instances in which an appendix is examined after removal, where symptoms pointing to it have been in existence, bacteria may not be found. But it is to be remembered that most of these are excised after the symptoms have nearly or completely disappeared—in fact, during the quiescent stage. It is therefore quite possible that since the inflammation has passed, the bacteria which induced it may have vanished. On the other hand, an examination of the increasing number of appendices removed during an attack, and some of these attacks of only a slightly greater severity than a "mild" preceding one, show not only the presence of bacteria but an abundance of infective micro-organisms. It is open for an objector to say that these organisms are present in every appendix, whether it be the site of inflammation or not, and that the bacteria must therefore play little or no part in the inflammatory process when in progress. Granted that the constant presence of bacteria in greater or fewer numbers is true, this fact only tends to strengthen further the supposition that parasites are the essential cause of the inflammation. They are present, they can incite inflammatory processes, and if some starting cause ensues they will produce the condition of distinct inflammation with symptoms.

If it be conceded that all cases of inflammation of the appendix with symptoms are the outcome of bacterial infection, what deductions should be drawn therefrom? First, that it is impossible to say what will be the limits of any given attack, merely a few days' malaise with slight colicky pain referred to the right iliac fossa, or death from septic peritonitis or septicæmia. Secondly, that should the sufferer apparently recover from the attack, there will probably remain, in a now more than ever damaged appendix, bacteria always ready to light up a fresh inflammation on the least provocation. (Fig. 3.)

FIG. 3.

Section of appendix with calculus *in situ* (× 25).

BACTERIOLOGY.

Many varieties of bacteria may be found within the lumen of the appendix, in the walls of the tube, in the lymph formed on its serous surface, in the adherent portions of omentum, in the peritoneal fluid, in consecutive abscess cavities, in distant collections of pus, and even in the blood and remote organs. They may be classified as follows: 1. *Bacilli.*—(*a*) Bacillus coli communis in its various forms; (*b*) bacillus pyocyaneus; (*c*) bacillus prodigiosus; and (*d*) bacillus tuberculosis. 2. *Cocci.*—(*a*) Staphylococcus pyogenes aureus; (*b*) staphylococcus pyogenes albus; (*c*) streptococcus pyogenes citreus; and (*d*) diplococcus pneumoniæ. (Fig. 4.)

As to the frequency with which the more common individual organisms are found the following may be taken as a fairly accurate estimate based, as it is, upon the combined results of the investigations of many authorities: (1) varieties of the bacillus coli communis, 94·0 per cent.; (2) bacillus pyocyaneus, 0·5 per cent.; (3) bacillus prodigiosus, 0·5 per cent.; (4) bacillus tuberculosis, 2·0 per cent.; (5) staphylococci, 1·5 per cent.; and (6) streptococci, 1·5 per cent. The bacillus coli communis is the only organism which is commonly found alone in cases of appendicitis. Cocci are but rarely present by themselves, though they are more often found in association with the colon bacillus. (Figs. 5 and 6.)

Tuberculosis of the appendix may be primary or merely

part of a general infection of the alimentary tract. In its primary form, which is decidedly rare, it is apt to be very chronic, producing signs and symptoms of a chronic appendicitis. In these instances the mucosa and the submucosa will ordinarily be the parts involved, the serous membrane

FIG. 4.

Calculus from the same appendix as in Fig. 3 showing colon bacilli ($\frac{1}{12}$ oil immersion).

frequently remaining free. Now and then there are seen instances in which connective tissue hyperplasia is the predominant anatomical feature of the lesion, giving rise to a mass which to the naked eye is very difficult to distinguish from a new growth. This hyperplasia is probably the

FIG. 5.

Section of inflamed appendix showing great infiltration of the mucosa and pus in the lumen (× 25).

outcome of a low virulence of the bacillus and a consequent disinclination to caseation and a great increase of newly formed connective tissue in place of it.

Secondary tuberculosis of the appendix is by no means rare and as a rule presents no marked signs or symptoms of its own presence, these being masked by those of the more extensive infection.

CALCULI AND CONCRETIONS.

It may be stated at the outset that these are always formed *in situ* within the lumen of the appendix. Although it is possible that their nucleus may have found its way from the cæcum into the appendix, yet the bulk of the material of the calculus has been laid down within the tube itself. Concretions or calculi may occur in almost any part of the alimentary tract and they may produce no signs or symptoms or they may give rise to most serious consequences in the way of irritation, inflammation, ulceration, perforation, or obstruction. The calculi of the appendix may behave in precisely the same manner as calculi elsewhere in connexion with the intestines. The malignity of calculi, and particularly of appendicular calculi, would seem to depend on one of two conditions, first the presence of virulent micro-organisms within or upon them, and secondly, their movement. If it were possible to have a stationary and non-septic calculus but little harm would result, but as soon as such a concretion is infected with organisms or changes its position, it is liable to produce dire consequences.

The surface of the calculi is usually fairly smooth and they are frequently rounded or elongated in form, occasionally

FIG. 6.

Pus from the lumen of the same inflamed appendix as in Fig. 5 showing colonies of staphylococci ($\frac{1}{12}$ oil immersion)

presenting facets. These three facts would seem to me to indicate that the calculi have been subjected to a certain amount of movement, perhaps caused by ineffectual efforts on the part of the appendix to rid itself of its undesirable contents. But, on the other hand, a calculus may be markedly tuberculated on the surface. This latter condition is associated with a crystalline deposit and is usually observed in those calculi which are stationary and which are found within a distinct cavity in the appendix.

An interesting point in connexion with the formation of appendicular calculi is the question as to whether they can arise without the walls of the tube being separated from them by a distinct space. There can be no doubt, I think, from the observation of fresh specimens, that is before any process of hardening has been employed, that the walls may closely embrace the calculus and that the actual enlargement of the lumen of the tube has occurred in consequence of the growing calculus within it, rather than that the increase in size existed prior to the formation of the concretion.

ACTINOMYCOSIS OF THE APPENDIX.

The actinomyces may attack any portion of the alimentary tract, or the fungus may infect the adjacent organs or distant parts through dissemination from the intestines. That actinomycosis may be a primary lesion of the appendix is now an established fact, though the condition is necessarily a rare one.

A recently recorded case[2] illustrates the condition as it is usually seen. The patient had for some time been employed as a stable-boy in a hotel and had previously been a farm labourer. He had been the subject of hydrarthrosis of the right knee-joint at the age of 15 years but had made a rapid and complete recovery under treatment. He had lost three or four molar teeth during the past three years. He had long been in the habit of chewing blades of grass, grains of wheat, &c., when not quite ripe. His symptoms began with acute pain in the right iliac fossa, with recurring rigors, frequent nausea, and progressive malaise and debility. On several occasions there was a rise of temperature. The symptoms at first improved under treatment by rest, careful diet, and inguinal compresses moistened with tincture of opium. This improvement was succeeded by lassitude, persistent anorexia, and slight constipation, together with some loss of flesh. On palpation there was no tenderness in the region of the appendix but a small tumour above Poupart's ligament on the right side; it was about from three to four fingers' breadth in the vertical direction and was very hard to the touch. The appendix was removed and on microscopical examination typical actinomycosis was revealed.

One important point in the prognosis of actinomycotic inflammation of the appendix is the fact that there is a great liability for the wounds made, either to drain an abscess or even to remove a non-suppurating appendix, to have a marked tendency to become the seat of secondary infection with the fungus. It is therefore well to bear in mind the possibility of this infection in those instances in which a series of sinuses form after a lesion occurring primarily in the region of the right iliac fossa. In one case under my care these sinuses tracked upwards in the sheath of the rectus abdominis muscle almost to the thorax and downwards behind Poupart's ligament into the thigh and outwards into the lumbar region.

EFFECTS OF INFLAMMATION.

One effect of inflammation is obliteration of the lumen of the appendix. This is entirely an opposite condition to that of perforation. It is in this manner that nature may bring about what is sometimes termed a "spontaneous cure." There is also a natural tendency for the appendix to become obliterated in its lumen as age advances and it is for this reason that acute inflammations of the tube are less common in later life. In order, however, to bring about complete immunity to a recurrent appendicitis it is necessary that the whole of the lumen of the tube should be obliterated. (Fig. 7.) This result is not so very usual, for from attacks of inflammation there may be obliteration only of a small part of the tube. If this is at the distal portion it leaves the proximal part still in communication with the cæcum and still liable to the invasion of bacteria. If it is at the proximal end it shuts the rest of the lumen off from that of the cæcum and opens the door for the formation of a cyst of the appendix. If bacteria are shut up in the portion of the lumen which lies on the distal side of the obliteration an empyema may result. But take those instances in which, on a series of sections being cut from many parts of the length of the organ and all showing complete obliteration of its lumen, it is somewhat difficult to explain the undoubted attacks of pain, and of severe pain, that some of the possessors of such an altered tube have suffered from. (Fig 8.) A possible explanation

FIG. 7.

Section of sclerosed appendix, proximal end, lumen obliterated (× 25).

FIG. 8.

Section of the same appendix as in Fig. 7, distal end, a trace of lumen remains (× 25).

exists, however, in the fact that the majority of these appendices are found when exposed to be very closely bound down by adhesions to the surrounding parts and it may be that tension on these peritoneal bands induced by peristalsis or movements of the psoas muscle gives rise to the pain and discomfort. Whatever may be the actual explanation the fact remains that a removal of the altered appendix relieves the sufferer of all his troubles.

The histological appearances of these appendices in which the lumen has become completely obliterated varies considerably in different instances. In most the elements of the lympho-mucosa are to all intents destroyed and their place is taken by a mass of cicatricial tissue. In some sections here and there may be seen remnants of the glands or of the lymphoid follicles. In many the muscular layers seem to be a good deal hypertrophied.

SECONDARY ABSCESSES.

I only draw attention to these because I wish to emphasise the possibility of their occurrence at quite late periods after the complete removal of the appendix. I have myself had one case in which no less than five years after the removal of the appendix in the usual manner a secondary abscess formed close to the cæcum at the site of the stump of the appendix. These collections may be due to several causes. One is that a few bacteria are left behind which remaining latent may at a remote period light up a fresh suppuration. Another is that a silk ligature or suture has remained and has been the source of the irritation. A third is that a small portion of gauze has been accidentally left behind in a case in which drainage was required in spite of the removal of the appendix. All these causes are quite apart from those instances in which secondary suppuration occurs as the result of an incomplete operation in which too long a stump of the appendix is left or in which a peri-appendicular abscess has been drained and no attempt has been made to excise the appendix. Cullen[3] has recently described an interesting

[2] Dr. Leon Thevenot: Medical Press and Circular, December, 1902, p. 722.

[3] New York Medical Journal, Dec. 27th, 1902, p. 1111.

case in which a retrocæcal abscess developed three years after the complete removal of the appendix and has well illustrated the condition.

EXAMINATION OF THE BLOOD IN APPENDICITIS.

Recently a considerable amount of attention has been given to the examination of the blood as an aid in the diagnosis of appendicitis. While admitting that the hæmatological examination and significance may be carried too far, yet there can be no doubt of its usefulness as a help in diagnosis when employed with due consideration of other signs and symptoms. There are two distinct changes in the blood associated with appendicitis, both of which are very obvious and both have a recognised bearing upon treatment and prognosis. These two alterations are (1) anæmia and (2) leucocytosis.

1. *Anæmia.*—One has been often struck with the intensely anæmic appearance of some patients who have been suffering from toxæmia for many days. Not only is this anæmia apparent in the face of the person, but it is very evident when the blood is minutely examined. In several instances in which poisoning was due to absorption from the products of an infective appendicitis I have found a very marked diminution both in the actual number of erythrocytes and the percentage of hæmoglobin. The suddenness with which these changes may occur is a necessary factor in the importance with which they are to be viewed. There are, of course, conditions causing rapid loss of blood, as ruptured ectopic gestation, which must be carefully excluded. If the lessening of the erythrocytes is very great the proportionate loss in the percentage of hæmoglobin is tremendous, for while the average decrease in the oxygen carriers in instances of appendicitis of any form is about 15 per cent., according to the most recent statistics, that of the corresponding loss of hæmoglobin is no less than 25 per cent. Supposing, then, the fall in the hæmoglobin is between 35 and 50 per cent., whether or no the red corpuscles are correspondingly diminished in number, the question of operative interference becomes an anxious one for the surgeon. In some instances of the repeated attacks of the so-called catarrhal appendicitis there is a certain degree of anæmia, especially in young women and in those where there is chronic constipation. When the blood is examined there is a diminution in the red cells and hæmoglobin but without leucocytosis. I consider that in these cases probably both the anæmia and the appendicitis are dependent upon a disordered state of the alimentary tract and if the condition does not rapidly improve under careful dieting and good hygienic surroundings I am convinced that the removal of the appendix is indicated, as the continued anæmia may really be due to slight toxæmia by absorption from the appendix. It is remarkable how rapid is the return to health in certain of the cases after the removal of the source of poisoning is carried out. I would venture to suggest that more attention be paid to the anæmia arising in cases of chronic appendicitis or at least in those of chronic digestive trouble with suspicion of distinct local lesions of the appendix.

2. *Leucocytosis.*—Of recent years the question of leucocytosis in association with appendicitis has been engaging a considerable amount of attention, and although there are very divergent views as to the degree of importance that can be placed upon the condition yet taken in conjunction with other signs and symptoms the determination of its presence may be of the greatest assistance (1) in the diagnosis of suppuration before operation; (2) in the diagnosis of secondary suppuration after operation for abscess; and (3) in the differential diagnosis of appendicitis from other affections. It is often a matter of extreme difficulty to say in any given case of inflammation of the appendix whether or not a focus of suppuration has formed. It is equally true that in the vast majority of instances in which pus is being produced in the tissues there is an increase in the number and an alteration in the characteristics of the white corpuscles circulating in the blood. It would seem therefore that given a case of appendicitis in which leucocytosis is obvious the surgeon may safely assume that suppuration is in evidence or that the case is one that demands operative interference.

I will cite two examples as types in which a blood count taken in conjunction with a general view of the case distinctly assisted in the diagnosis, and therefore in the treatment, of the lesion. Both are taken from Cabot's excellent review of the subject.[4] The first case (Case 40, Cabot) is one in which the blood count showed a progressively increasing leucocytosis which in the end decided the necessity for surgical interference. The age of the patient, a male, was 19 years, and the blood count showed 4,380,000 *red cells*. The *white cells* were as follows: on March 25th, at 9 P.M., 15,600, with vomiting, pain, and tenderness; on the 27th 19,500, the patient being comfortable, with no vomiting, and the signs more localised; on the 28th 22,900, there being slight tenderness only; on the 29th 35,300, the bowels moving well, with no symptoms; and on the 30th 32,800, when operation was performed, a large amount of pus being found. This is a typical case and one in which the other signs and symptoms present did not point to the formation of pus and the necessity for surgical interference. The second case (Case 20, Cabot) is one of exactly opposite nature. The patient in this case also was a male who had suffered from appendicitis for 24 hours with a resistant abdomen. On Oct. 23rd the white cells were 20,100; on the 24th at 9 A.M. 14,000, at 4 P.M. 12,000, and at 10 P.M. 13,250 (no operation); and on the 25th at 8 A.M. 8750 (the patient taking liquids every two hours) and at 3 P.M. 9600. Here, although there was a distinct leucocytosis on the first day of the affection, yet the signs and symptoms were but slight, and on the next day there was a rapid fall in the number of leucocytes which seemed to indicate—and that correctly, as the progress of the case proved—that there was no suppurative process in evidence. The number of leucocytes dropped to nearly normal on the third day of the attack.

As has been recently shown by Dr. C. J. N. Longridge,[5] there is a tendency in those cases in which the infective inflammation of the appendix is so severe as to cause rapid gangrene of the tissues forming its walls for a very marked leucocytosis to be present. Thus, in his published table of 36 cases, in no less than six instances there was a leucocytosis of from 20 000 to over 30,000 and in all the appendix was found on exposure to be gangrenous but not surrounded with pus. I have observed the same in two cases in which on operation the appendix was found gangrenous within 48 hours of the onset of the symptoms and in both of which there was a considerable amount of non-purulent slightly irritating fluid in the peritoneal cavity. Both patients, in spite of washing out of the abdomen, intravenous saline injection, &c., succumbed to an intense toxæmia. One case was that of a strong and active young man, aged 20 years; the other that of a young married woman, aged 27 years, who was robust and healthy.

As to the causation of this condition there is much dispute. Purulent and gangrenous processes both cause a high count of white cells as a rule, that of purulent conditions being fairly easy of explanation, but that of gangrenous more difficult. Virulence of the toxin and the resisting power of the individual have much to do with the degree of leucocytosis. Generally speaking, the more intense the poison and the greater the resistance, the higher will be the leucocyte count.

In both cases mentioned above the subjects were young, apparently in the enjoyment of good health, singularly active, and robust. The onset of the infective process was sudden and the poisoning intense, but their resistance was great. Hence there was a rapid and surprisingly marked augmentation of leucocytes, the count in both exceeding 35,000 within 48 hours of the first indication of the trouble. I think that it is a fact that most of these cases of so-called "fulminating" appendicitis occur in young, active, robust persons who are therefore just those who conform to the conditions of marked inflammatory leucocytosis—namely, intense infection and great resistance.

Unfortunately, in a fair proportion of the cases in which inflammation of the appendix has reached the stage of suppuration and the case can only be treated by drainage there is a great liability for secondary abscesses to form either in the region of the primary mischief or at distant parts. It is in such cases that a blood count may again be of service. Another case taken from Cabot's series (Case 18) illustrates this very clearly. In this case, on Nov. 5th, the white cells were 21,700 (first operation); on the 10th, 21,400; on the 13th, 16,000; on the 15th, 24,400; on the 16th, 20,200; on the 19th, when the second operation was performed and a pus pocket was found, 47,700; on the 20th, 16,700; on the 21st, 13,000; on the 22nd, 10,700; on the 26th, when a third operation was performed, a pus pocket being again found, 30,200; on the 27th, 20,000; and on the 28th, 17,700; on Dec. 4th, 11,900; and on the 26th, 11,300.

[4] Cabot: Clinical Examination of the Blood, 1901.

[5] THE LANCET, July 12th, 1902, p. 74.

The Hunterian Lectures

ON

THE NATURE AND ANATOMY OF ENTEROPTOSIS (GLÉNARD'S DISEASE).

Delivered before the Royal College of Surgeons of England on March 2nd, 4th, and 6th, 1903.

BY ARTHUR KEITH, M.D. ABERD., F.R.C.S. ENG.,

HUNTERIAN PROFESSOR, ROYAL COLLEGE OF SURGEONS OF ENGLAND, ETC.

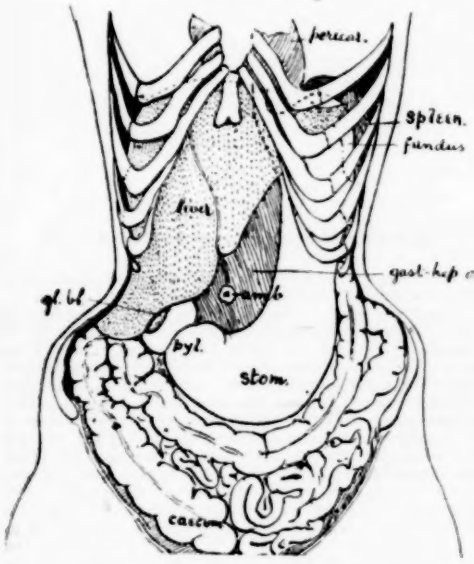
LECTURE III.[1]

Delivered on March 6th.

PTOSIS OF THE LIVER AND STOMACH.

MR. PRESIDENT AND GENTLEMEN,—Displacement of the liver and stomach springs chiefly from two causes—either from the relaxation or paresis of the abdominal muscles which maintain the visceral shelves on which these organs are supported or, as is more frequently the case, the body cavity is constricted by clothing or contorted by disease, so that the normal respiration swing forwards cannot take place. In either case the visceral displacements are much the same.

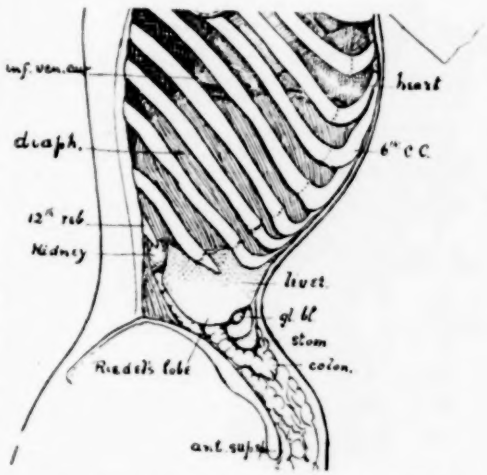
FIG. 14.



A case of partial ptosis of the viscera in a woman, aged 45 years. The waist, which measured 26 inches in circumference, was reduced to 22 inches by corsets. The viscera were then hardened *in situ* by the injection of formalin. The duodenum descended as far as the brim of the pelvis.

The position and shape of the liver and stomach, shown in Figs. 14 and 15, are characteristic of the general type of enteroptosis so frequently met with in our dissecting-room. The subject from which the illustrations shown in Figs. 14 and 15 were made was a woman, aged 45 years, in whom the viscera were fixed and hardened *in situ* by the use of formalin after her natural waist of 26 inches had been reduced to 22 inches by corsets, a reduction quite within the limits of ordinary practice. The condition of the viscera shown was present before death; the corsets merely help to emphasise the natural characters of the displacements. To understand how such a condition has been produced a number of points have to be observed. The extrusion of the viscera from the sub-diaphragmatic space is due (1) to the constriction of the thorax; (2) to the pressure applied to the epigastric region which prevents the stomach and liver swinging forwards so as to over-ride each other; and (3) to the depression of the ribs (see Fig. 15) which throws the costal fibres of the diaphragm into a more vertical position; they tend then to press the viscera downwards rather than forwards. The corsets when worn prevent an inspiratory depression of the liver; the viscera become, when so restrained by the application of corsets, a fulcrum on which the chest is raised. But when the corsets are removed or undone the muscles of the wall of the abdomen, being weak from disuse, are ill equipped to oppose the action of the diaphragm. In the body shown the subcostal arch is narrow, but had the patient lived it would have opened out as the viscera were displaced further downwards until, instead of measuring 50°, it would have reached 90° or more.

FIG. 15.



Lateral view of the same subject as is shown in Fig. 14.

Riedel's lobe.—Why is it that in partial or complete cases of visceral ptosis there is always a tendency for the lower extremity of the right lobe of the liver to be produced into a linguiform process (Riedel's lobe), such as is shown in Figs. 14 and 15? Two circumstances have to be taken into account. 1. The part of the right lobe which lies beneath the tips of the tenth and eleventh ribs is the first to escape from beneath the lower margin of the thorax; the pressure of the costal margin tends to separate the part extruded from the part within the thorax. 2. But a more important circumstance lies in the fact that the space between the crest of the ilium and the tips of the eleventh and twelfth ribs is the part of the abdominal wall least protected by muscular support. Fasciculi of the external and internal oblique are the sole muscle supports in this region. Owing to the crest of the ilium, from which they act, projecting further outwards than the tips of the eleventh and twelfth ribs, on which they act, these muscular slips tend to draw the ribs outwards rather than inwards during expiration and hence are ill designed to prevent the displacement of the liver towards the right loin. This is markedly true of the female (see Fig. 14).

FIXATION OF THE KIDNEYS.

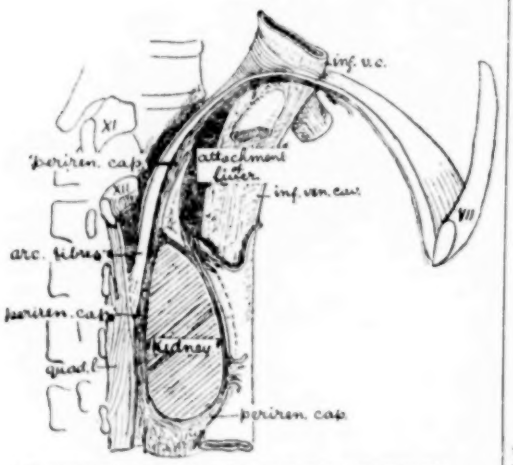
If one will analyse and estimate the various forces which maintain the kidneys in their normal position, it will be found that by far the most important is the constant pressure exerted on them by the diaphragm on the one hand and the muscles of the abdominal wall on the other. Unlike the liver, the stomach, and the spleen, the kidneys rest on no visceral shelf. While the diaphragm exerts its force directly on them the muscles of the abdominal wall can act only indirectly through the abdominal viscera. In front of the right kidney are the liver,

[1] Lectures I. and II. were published in THE LANCET of March 7th, 1903, p. 651.

duodenum, colon, and small intestine; in front of the left kidney, the stomach, spleen, colon, and small intestine; through these the muscular wall of the abdomen maintains the kidney against the diaphragm, quadratus lumborum and psoas muscles.

Next in importance to the muscles is the loose connective tissue or perirenal capsule in which the kidney is imbedded. Recently the capsule has been differentiated by Zuckerkandl into two layers—the pre-nephric and post-nephric fasciæ, but every time I seek to demonstrate the described disposition and relationship of these fasciæ I feel that I make a greater demand on the imagination of my students than on their powers of observation. Moreover Zuckerkandl's description of the perirenal capsule makes a simple matter difficult. As a passive renal bond the perirenal capsule is of the very first importance. By it the kidneys are bound to the diaphragm and for practical purposes to the diaphragm only. At the upper pole of the right kidney the tissue of the capsule fuses with the connective tissue of the mesepaticon on the right side

FIG. 16.



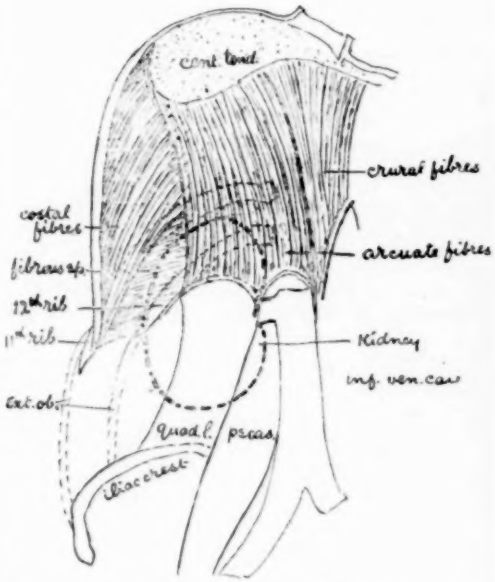
Vertical section of the right kidney in situ to show its relationship to the diaphragm and perirenal capsule. The position shown is that of complete inspiration. The diaphragm was thrown into a condition of contraction by the application of boiling water.

(Fig. 16) and with the tissue of the coronary ligament of the stomach and suspensory ligament of the spleen on the left side. Along with the viscera just named the kidneys are fixed to the arcuate fibres of the diaphragm (Fig. 17). At the outer border of each kidney the capsule is continuous with the dense subperitoneal fascia of the diaphragm and transversalis fascia and muscle; but at the lower pole of the kidney the tissue of the capsule is loose and open and freely permits the respiratory descent of the kidney. The meshes of the posterior layer of the capsule become laden with a peculiar fat from one to two months before birth. The fat serves as a perirenal bursa or slide on which the respiratory movements of the kidney take place.

There is, too, another renal bond also connected with the perirenal capsule—namely, the renal pedicle. The pedicle is made up (1) of the renal artery; (2) of the renal vein; (3) of dense connective tissue derived from the radix mesenterica which fuses with the perirenal capsule at the inner border and hilum of the kidney and with the fibrous covering of the suprarenal bodies; and (4) of the renal plexus of nerves and lymphatics. The renal pedicle limits the extent and direction of the movements and displacements of the kidney. As a bond the peritoneum which covers the anterior or outer surface of the kidneys may be left out of account; it is so designed as to permit renal respiratory movements; it is so attached that it could only prevent a displacement in an upward direction. It is attached loosely over the lower ends of the kidneys so that these organs may descend easily on the quadratus lumborum and psoas.

Respiratory movements of the kidney.—Since the inspiratory descent of the kidney is entirely produced by the contraction of the diaphragm the extent and direction of the movement are best understood by observing the relationship of the kidney to the fibres of that muscle (see Figs. 16 and 17). It is convenient to divide the kidney into two parts—viz., the *supracostal*, or diaphragmatic, the part above the twelfth rib or its representative, and the *infracostal*, or lumbar part, resting on the psoas, quadratus, and transversalis tendon (Fig. 17). The kidney is in relationship only

FIG. 17.



Showing the relationships of the right kidney to the diaphragm.

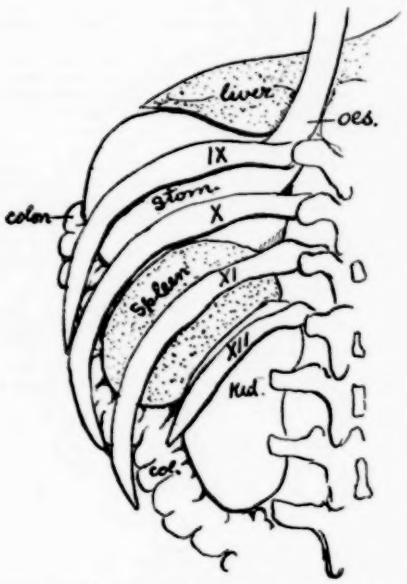
with the arcuate fibres which, arising from the arcuate ligaments, expand somewhat outwards as they ascend behind it. The supracostal part of the kidney also rests on the fibrous interval between the arcuate and costal fibres, which in 40 per cent. of bodies is relatively as great as is shown in Fig. 17. The fibrous space marks the former communication between the pleural and peritoneal cavities; the muscular fibres which bound it mark the outer edge of the primitive digastric band-like diaphragm. Above the kidney the liver is bound to the arcuate fibres on the right side (see Fig. 16) and to the spleen and stomach on the left. These structures, being pulled downwards by the arcuate fibres in each breath taken, push the kidneys downwards and inwards before them, the extent of the excursion varying from two to four centimetres with each breath. The kidneys, and the viscera attached in the hypochondrium above them, are pulled down on the arcuate fibres as logs on a sledge. In this movement the loose perirenal capsule and fat in front of the quadratus lumborum and psoas act as a renal slide. The renal pedicle controls to some extent the direction of the movement. On expiration the muscles of the abdominal wall, especially the transversalis, return the kidney to the initial inspiratory phase.

Displacements of the kidney.—The condition essential to the displacement of the kidney, whether right or left, is a diminution of the subdiaphragmatic space. Unfortunately such a diminution may be produced in many ways: (1) by compression of the thorax with clothing; (2) by a partial collapse of the thoracic walls following chest or spine disease; and (3) by the permanent contraction of the diaphragm which follows a relaxed or paretic condition of the abdominal walls. In cases of general enteroptosis the muscular fasciculi of the diaphragm measure on an average only two and a half inches, against three and a half to four inches in a condition of health. I suspect, too, that in some cases of pleurisy the diaphragmatic connective tissue is contracted or in a cirrhotic condition which leads to a diminution of the diaphragmatic domes. When the

sub-diaphragmatic space is reduced, then the part or parts most easily ejected are displaced below the costal margin.

Displacement of the left kidney.—Why is it that the left kidney is so seldom displaced? The answer is that the left hypochondrium is provided with a safety valve in the shape of the splenic flexure of the colon, which is so formed and fixed that it may enter or leave the hypochondrium with the greatest freedom as the stomach empties or fills. The mechanism will be better understood by referring to Fig. 18,

FIG. 18.



The position of the splenic flexure, the spleen, and the left kidney when the stomach is full. When empty the kidney and spleen ascend an intercostal space, while the splenic flexure is moved upwards into the angle between the spleen and stomach.

which represents the position of the organs in the left hypochondrium from behind when the stomach is full. When full the liver, as Symington and Cunningham have pointed out, is tilted more into the right hypochondrium, the left kidney is forced half an inch or more downwards, the spleen is carried outwards on the distended fundus of the stomach, but the part which is displaced by far the most is the splenic flexure of the colon. Professor Birmingham has clearly described the manner in which the colon replaces the gastric contents. Hence it is that when the left hypochondrial space is reduced, the splenic flexure, being in the habit of going and coming, can accommodate itself to a partial or complete subcostal position, leaving the kidney and other organs undisturbed. The extrusion of the colon, however, may not be enough to compensate for the diminution of the hypochondrium, then the stomach, the spleen and the kidney are all displaced. On the right side there is no obliging moveable viscus; the liver and kidney fill the diaphragmatic dome and either the one or the other must make way, or, as more commonly happens, a part of both is extruded, when the subcostal space is reduced in size. Hence the frequent presence of a Riedel's lobe of the liver with a partial displacement of the right kidney. There are, however, several other circumstances which give the left kidney a more secure fixation than the right. 1. The left kidney is bound to the spleen and the spleen is bound by its suspensory ligament to the diaphragm. 2. The arcuate fibres draw down the unwieldy heavy base of the liver on the right kidney; the fundus of the stomach, drawn down on the left kidney, represents a lighter hammer.

Displacement of the kidney in women.—It is commonly said that the kidney is ten times displaced on the right side for once on the left and that renal displacements are ten times more common in women than in men. Yet at birth the two kidneys are equally placed; through a long series of human fœtuses I noted no difference of sex, of size, or of individual in the position of the kidneys. In fact, the only variable factor then is the relationship of the cæcum to the right kidney; it is commonly bound in front of the hilum, but it may lie internal to the kidney or in the loin below it. On the other hand, the splenic flexure of the colon is always bound to the front and outer border of the left kidney.

The liability of women to renal displacements begins at puberty and increases in frequency with each decade up to the fifth. As the female sexual characters are developed the iliac crests expand outwards and the transverse intercristal diameter of the body becomes greater than the transverse diameter of the lower part of the thorax by an inch or more. In children, as in primates, the pelvis is narrower than the chest. In some women, from natural conformation or from an exaggeration of the natural form by the use of stays, the iliac crests may project outwards on each side two inches or more beyond the lateral wall of the thorax formed by the lower ribs. The eleventh and twelfth are the only ribs that have a relationship to the kidney (see Fig. 17). As far as their movements are concerned both of these ribs may be regarded as part of the abdominal wall. They ride outwards and inwards with the inspiratory expansion and expiratory contraction of the abdominal wall. The muscles which depress them and thus limit the space in the loin into which the kidneys descend during inspiration are fasciculi of the external and internal oblique, which rise from the crest of the ilium. When the projection of the iliac crests and the depression of the lower ribs become marked these muscular fasciculi, instead of compressing the loins and assisting the expiratory return of the kidney, tend rather to prevent its return by expanding the capacity of the loins. In this sexual character is to be found at least one of the causes which render women more liable to kidney displacements than men.

High versus low waists.—It frequently happens that in women who bear evidence of constriction from corsets the right kidney is situated at a higher level than usual; occasionally it may be found completely above the twelfth rib. In such cases a long lumbar region has allowed the waist to be formed well below the costal margin; the constriction of the corsets forces the kidney upwards; in short waists, on the other hand, the waist is formed at or above the level of the kidney. In connexion with the formation of the waist the relative size of the twelfth rib must be taken into account. The twelfth rib is more frequently short or vestigial in the female than in the male.

Relationship of the colon to the kidney.—Cases have been recorded by Sir Frederick Treves and Dr. T. J. MacLagan, and similar cases have been described and discussed by Mr. J. Hutchinson, jun.,[2] in which a floating right kidney has given rise to obstruction of the bile-ducts. In such cases ptosis of the liver and stomach with great elongation of the gastro-hepatic omentum will be found, much like the conditions shown in Fig. 14. Besides these derangements three others may be noted when the viscera are exposed by the reflection of the belly wall. 1. The head of the pancreas and duodenum are displaced forwards as well as downwards, being almost completely extruded from below the liver. 2. The hepatic flexure, still attached to the peritoneum over the kidney, is displaced downwards in the right loin. 3. The lower pole of the right kidney covered by its peritoneum, and partially rotated on the renal stalk, protrudes in an interval on the anterior surface of the abdominal viscera, between the liver above, the hepatic flexure below, and the duodenum and pancreas to the left. The kidney causes obstruction of the duodenum rather than of the bile-ducts. In accounting for this condition the relationship of the colon to the kidneys must be taken into account. The transverse colon is so suspended and folded that it may easily accommodate itself to the respiratory movements of the structures in the hypochondria, to the filling and emptying of the stomach, and to its own state of distension. Its mesentery forms a shelf for the liver, stomach, and spleen and is pushed downwards if these organs are displaced. At each end the transverse colon is fixed closely to the peritoneum over the kidneys by the hepatic and splenic flexures, but the part at the hepatic flexure lying just below the liver is less

[2] The Practitioner, February, 1902.

adapted for movement than the part below the stomach near the splenic flexure. If then there is ptosis of the subdiaphragmatic viscera, or if the colon be overloaded and distended, the peritoneum over the kidneys is drawn downwards and forwards owing to the traction exercised on it by the displaced transverse colon. The hepatic segment being the more fixed cannot be depressed without pulling on the peritoneum over the right kidney, thus making a space into which the kidney may be displaced forwards. It is the forward displacement that constitutes a *floating* kidney.

FIXATION OF THE INTESTINAL TRACT.

Up to this point attention has been directed to the fixation and movements of the human viscera, but now, in seeking to unravel the complicated and peculiar manner in which his intestinal tract is fixed, it is necessary to turn to the scheme of visceral fixation in other animals.

Seventeen years ago, from this same chair, Sir Frederick Treves solved many problems regarding the arrangement of the human peritoneum by a reference to the rich field of mammalian anatomy. It is most profitable, however, to turn at once to the primates, that order of mammals with which man has been brigaded from ancient times and from the stock of which, if there is aught of truth in the process of evolution, man certainly sprang. Point for point, even in minute detail, the abdominal and thoracic viscera of the great anthropoids—the orang, gorilla, and chimpanzee—are fixed in the same manner and situations as in man (Fig. 19).

FIG. 19.

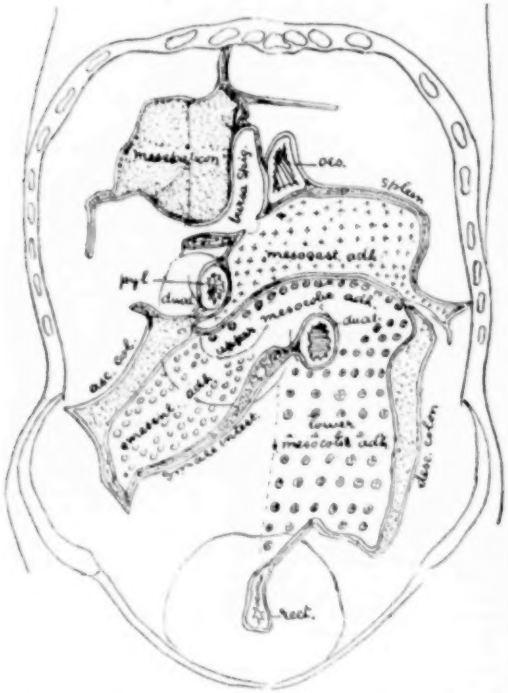


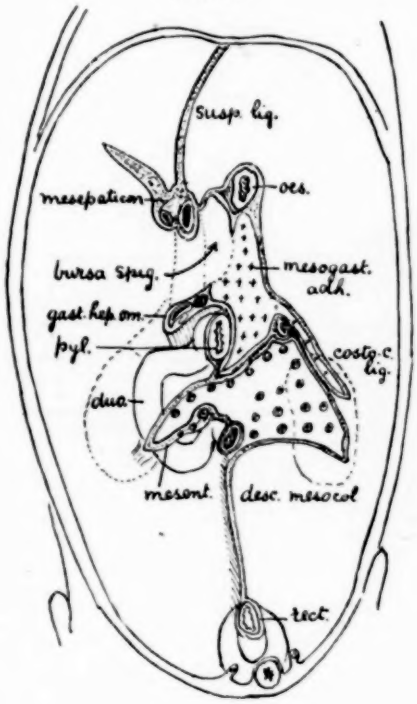
Diagram of the posterior wall of the adult human abdomen showing the areas of visceral fixation. Four of the five areas of mesenteric adhesion are represented by distinctive marks: +, mesogastric adhesion; O, mesenteric adhesion; Θ, upper mesocolic adhesion; ⊕, lower mesocolic adhesion.

To find a condition parallel to that in the commoner forms of apes or pronogrades monkeys one must take the arrangements of the peritoneum found in the child at birth or a little after birth (Fig. 20). The manner in which the viscera are fixed in the lowest primates, such as some South American monkeys or in lemurs generally, is morphologically identical with the human condition at the third month of development (see Fig. 21). The net result which one brings back from a study of the anatomy of the primates is, that with the evolution of the orthograde posture and orthograde type of respiration, mesenteric adhesions, which appeared one after the other in five different areas, spread out and bound the alimentary tract more and more to the abdominal wall, as the animal became more orthograde in posture. The manner in which the viscera are fixed in man results from his posture and respiration. The cells which bring about these mesenteric adhesions fill the broad base of the foetal mesentery, but how they became sensitive to the new needs of the evolving organism is a problem yet to be solved. The five areas of adhesion referred to above (see Figs. 19, 20, and 21) are the following: (1) mesogastric; (2) mesoduodenal; (3) mesenteric; (4) upper mesocolic; and (5) lower mesocolic.

The mesogastric adhesion (Fig. 19).—Although the dorsal mesogastrium is produced into the great omentum in all primates, it is only in man and orthograde primates that its root becomes adherent to the posterior abdominal wall. The cœliac axis marks its original point of attachment; from there the process of adhesion spreads outwards over the left suprarenal body and upper part of the left kidney until it reaches the spleen which is attached to the mesogastrium. In 85 per cent. of children at birth the process of adhesion has extended almost to the outer border of the left kidney, thus binding the spleen to that organ. Since the tail of the pancreas lies in the root of the mesogastrium it also becomes adherent to the posterior wall of the abdomen.

The mesoduodenal adhesion.—The adhesion of the right aspect of the mesoduodenum to the hilum of the right kidney is, with the exception of the mesenteric, the latest to

FIG. 20.



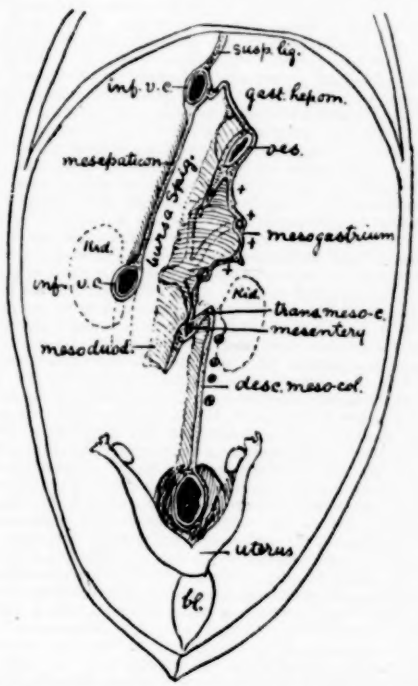
The visceral attachments and mesenteric adhesions of a pronograde ape (*Semnopithecus cinereus*). The markings indicating the mesenteric adhesions are the same as those used in Fig. 19.

appear. It is commonly incomplete, the adhesion mainly affecting that part of the duodenum across which the colon passes. The duodenal adhesion can always be easily undone and by so doing the freest surgical access is obtained to the lower or post-duodenal stage of the common bile-duct. The adhesion extends after birth outwards on the kidney.

The lower mesocolic adhesion (see Figs. 19, 20, and 21).—The process of adhesion, which leads to the fixation of the splenic flexure to the front of the left kidney and of the descending colon and its mesentery to the left loin, is earlier in appearance than either the mesoduodenal or mesenteric, but later than the mesogastric and upper mesocolic. It is seen only in the orthograde group of primates and is an adaptation to the upright posture. The mesentery of the splenic flexure and descending colon is primarily attached in the middle dorsal line along the aorta, being continuous anteriorly with the radix mesenterica and mesentery of the duodenum. The process of adhesion, commencing in the base of the mesentery, spreads outwards by a species of growth over the left kidney and left loin until the colon itself adheres to the parietal wall. The process of adhesion proceeds to a variable extent in the mesosigmoid. It may proceed down into the iliac fossa and fix closely the upper part of the omega loop there or it may stop short and give rise to the inter-sigmoid fossa.

The upper mesocolic adhesion.—By this adhesion the transverse colon, the hepatic flexure, and the ascending colon are fixed in position; the cæcum and appendix being developed as protrusions from the bowel have no proper mesenteries. This, the primary adhesion of the five, is present in all primates and is the most difficult to describe. The important circumstance to remember is that the duodenum and upper segment or cæcal region of the colon are developed at the same time and side by side from the base of the yelk sac, their mesenteries forming one continuous mass. Dr. Chalmers Mitchell has shown that in birds and mammals alike these two structures—the duodenum and cæcal segment of the colon—are united by a fold of mesentery. The duodenum and colon being thus adherent the mesogastrium when it grows out

FIG. 21.



The visceral attachments in a low primate (*Lemur coronatus*).

meets with the mesocolon. It is 20 years since Lockwood discovered that when the mesogastrium and mesocolon came in contact the process that leads to their fusion or union starts at their bases and spreads forwards to their visceral attachments. The process of fusion proceeds furthest in man and the anthropoids. Further, the great omentum formed by a ballooning of the mesogastrium envelops the whole of the upper segment of the colon. In the human child at birth the cæcum varies widely in position; in seven infants out of ten it was adherent in front of the right kidney or duodenum; in three it lay in the loin and iliac fossa below the kidney. The ascending colon and ascending mesocolon are formed as the child learns to walk by an extension downwards into the right iliac fossa of the primary adhesion to the kidney.

Respiratory movements of the transverse colon.—While the hepatic and splenic flexures of the colon are closely adherent to the right and left kidney and accompany them in their respiratory movements, the transverse colon is swung loosely by its horizontal mesocolon and accommodates itself to the free respiratory oscillations of the organs in the subcostal region. The transverse mesocolon forms a shelf for the subdiaphragmatic viscera and separates them from the coils of the small intestine. The transverse colon is markedly displaced in cases of enteroptosis; the descent of the subdiaphragmatic viscera carries it and its mesocolon downwards. Mr. Arbuthnot Lane has called attention to the traction and obstruction exercised on the hepatic flexure in displacement of the transverse colon. The same observation applies to the splenic flexure and seeing how intimately the colon flexures are adherent to the kidneys the displaced colon may also exercise traction on them.

The mesenteric adhesion.—The adhesion of the mesentery of the small intestine to the posterior wall of the abdomen, in an oblique line drawn from the termination of the duodenum to the cæcum, is a character of those primates which are adapted to the orthograde posture (Fig. 19). The mesentery of the small intestine, together with that of the ascending and transverse colons, is originally a fan-shaped sheet with only its apex attached at the radix mesenterica. There it is wedged in between, and continuous with, the mesenteries of the lower colic segment and duodenum. In the human child at birth only the apex and the colic edge of this fan-shaped sheet are attached (Fig. 20). That attachment forms the root of the transverse mesocolon, but the rest of the mesentery is free. Immediately after birth the process of adhesion, starting at the transverse or mesocolic edge, spreads downwards in the direction of the right iliac fossa. It is not uncommon for this process of adhesion to be arrested at various stages. The attachment may fail and the whole of the small bowel be suspended from the radix mesenterica or the ascending colon, and the termination of the ileum may be left free and these parts are then liable to become the seat of volvulus. Even when the mesenteric adhesion spreads to its normal extent the radix mesenterica and superior mesenteric arteries are the main intestinal support.

Movements and displacements of the small intestine.—The small intestines lie in a special peritoneal compartment formed by the mesocolon and great omentum. Under the pressure of the belly wall they support the horizontal subdiaphragmatic shelf formed by the transverse meso-colon. This septum cuts off the respiratory movements of the liver, spleen, and stomach. Intestinal displacement may be due either to a diminution of the costal part of the body cavity, the subcostal viscera being thus thrust down on the small intestines, or, on the other hand, the support afforded them by the muscular walls of the abdomen may give way. Their displacement is then followed by the descent of the subcostal viscera. When the intestines are forced into the pelvis, displacing the pelvic viscera, the traction exercised on the superior mesenteric artery and radix mesenterica causes a partial obstruction of the third stage of the duodenum.

Time and space prevent my dealing with the various displacements that overtake the pelvic organs and pelvic wall in cases of enteroptosis. On some future occasion I hope to be able to deal with them.

SMALL-POX HOSPITAL FOR GLOUCESTER.—The Local Government Board has sanctioned the application of the Gloucester corporation to borrow £2000 for the purpose of erecting a small-pox hospital.

BRISTOL MEDICAL MISSION.—The annual meeting of the subscribers to this charity was held on March 3rd under the presidency of Sir Herbert Ashman. The medical report stated that 8750 patients had been treated during 1902. The financial statement was satisfactory. One of the speakers stated that nearly one-third of the people of Bristol attended the medical charities of the city, which he considered was rather hard on the medical profession.

ON THE PROBLEM OF GLYCOSURIA AND DIABETES.[1]

BY W. HALE WHITE, M.D., F.R.C.P. LOND.,
PHYSICIAN TO, AND LECTURER ON MEDICINE AT, GUY'S HOSPITAL.

WHEN I accepted the honour of an invitation to speak at this debate I never dreamed it would fall to my lot to open it. Had I done so I should not have dared to accept, for the subject is so vast and the difficulties are so great.

The first thing that naturally attracts our attention is the recognition of dextrose in the urine. The universally employed copper-reduction test is unsatisfactory. As an example I may mention that about 20 years ago, when the nervous theory for diabetes was in the ascendant, it was urged in support of it that the urine of lunatics frequently contained sugar. Dr. G. H. Savage and I[2] showed that this was not so; the mistake probably arose from confounding the reduction given by kreatin and the other reducing bodies in the urine with that given by sugar. We all know the difficulty in life insurance work of estimating the value of a dirty greenish-brown precipitate given by boiling urine with copper solution and an alkali. We have probably all come across people condemned as diabetic who are not and the mistake has arisen either from the use of a stale copper solution or because of an abundance of reducing bodies in the urine which are not sugar. Those who are alkaptonuric are usually condemned as diabetic. The polarimeter, fermentation, and the formation of osazone crystals are all excellent tests, but the first requires an expert, the second is tedious, and the third needs time; there may be delay in the formation of the crystals and glycuronic acid also gives crystals which, however, are in rosettes of thick plump needles, not bundles of long needles like those of phenyl-glucosazone. We want someone to get up and to tell us that he has found a test by which small quantities of dextrose can be detected in the urine as easily as small amounts of albumin. We also want to know more about the appearance of glycuronic acid[3] in the urine. Do some people pass it and later become glycosuric? One case I have seen suggests but does not prove that this may be so. A woman whom I saw ten years ago complained of thirst and dry skin; the urine had a low specific gravity (1006), contained no albumin, but gave on many occasions an abundant brick-red precipitate on boiling with Fehling's solution. It did not ferment. I saw her again a few weeks ago and she is now passing genuine sugar, but the urine does not give a ferric chloride reaction. Bearing on this we have Futcher's[4] paper in which he shows that both fusel oil and tertiary amyl alcohol cause both dextrose and glycuronic acid to appear in the urine. Then, too, it appears that some sufferers from diabetes pass a little glycuronic acid, and it has even been stated that minute amounts of this acid may be found in healthy urine. Indeed, it must be remembered that there is every reason to believe that its appearance depends upon its being provided with something to combine with rather than on any disturbance of carbohydrate metabolism. Have any here present practical experience of Bial's[5] test for it? There is, I think, no doubt that in most cases the presence of glycuronic acid is asserted on insufficient grounds. A copper-reducing body is found which is not sugar and it is assumed to be glycuronic acid.

Allied to this is another subject on which we want further information—namely, that we occasionally see patients suffering from exophthalmic goitre who for a long while pass an abundance of sugar in the urine. For example, I saw a patient ten years ago with marked exophthalmic goitre and glycosuria. Her medical attendant writes now to say that the glycosuria persisted for two years, slowly the symptoms of exophthalmic goitre have disappeared, and now she is "practically well." Some authors have maintained that glycosuria is particularly easily induced in patients with exophthalmic goitre, but von Schrötter[6] gave such a patient grape sugar in doses of 200 grammes without any appearing in the urine. I have notes of one patient with exophthalmic goitre whose father had diabetes and of another who has two sisters who have diabetes. Probably the fact that polyuria, thirst, and great hunger are frequent symptoms met with in exophthalmic goitre is unconnected with the glycosuria, for they occur independently of it and in support of this is the fact that Dr. H. French,[7] making observations on a patient of mine with severe traumatic diabetes insipidus, was unable to produce glycosuria even by giving large amounts of sugar.

We want information about the occurrence of other sugars than dextrose in the urine. Clinically, three appear to be important—lævulose, lactose, and pentose. Lævulose I will refer to presently. Can any speakers give us definite information about the after-history of women who during suckling pass lactose in their urine? It is stated that of those who develop glycosuria during pregnancy recovery takes place in three-quarters, with a tendency for the glycosuria to recur in other pregnancies, but we want to know of the quarter who do not recover—do they become genuine diabetics or continue to pass lactose? Also, we want to know if a quarter is not too high a proportion of those who do not recover; probably it is. Very few, if any, observations have been made in England on pentosuria. Pentose appears to exist in the urine in two conditions—namely, in association with other sugars in diabetes—as, for example, d'Amato has recently recorded the case of a patient with a pancreatic calculus and diabetes in whom the urine contained both dextrose and pentose—and in very rare cases as an independent condition in which although pentose appears in the urine the patient can utilise pentose. Brat[8] has recently recorded a case of pentosuria in a woman, aged 62 years, whose brother also had pentosuria. Some of the patients with pentosuria were morphomaniacs. Is pentosuria found in any large proportion of morphia takers? In passing I should like to suggest that as accuracy of language leads to accuracy of thought we should when we know the sugar in the urine to be dextrose speak of dextrosuria, thus harmonising with lævulosuria, pentosuria, and lactosuria.

Talking of nomenclature leads me to ask for a more accurate use of the word diabetes. Even the use of the additional word mellitus does not help, for many speak of alimentary glycosuria as diabetes mellitus. As it is now, if I hear a patient has diabetes I do not know whether he has the comparatively harmless alimentary glycosuria or the dangerous disease diabetes in which he is liable to coma and passes oxybutyric acid and its derivatives in his urine. Fagge was of opinion that the word diabetes should be used only for the severer disease and this would be best; however, I doubt whether now this is possible, but at any rate we might adopt Dr. F. W. Pavy's excellent suggestion and speak of alimentary diabetes and use the phrase "composite diabetes" to indicate the patients who pass sugar and oxybutyric acid and its derivatives, of which aceto acetic acid is recognised by the ferric chloride reaction and acetone by the nitro-prusside of sodium reaction, but the detection of acetone is not nearly so important as the detection of aceto-acetic acid, for acetone is often present in persons who have no diabetes. It cannot be too strongly urged that no case of sugar in the urine has been even superficially examined unless the ferric chloride test has been employed.

We badly want a series of cases recorded with a view of finding out what proportion of these alimentary cases become composite cases. Some will certainly appear to do so, for many an apparent alimentary case is really the early stage of a composite case, indeed, Ebstein believes that this is so of all alimentary cases. Dr. Pavy, too, is strongly of opinion that alimentary cases often at least later become composite unless properly treated. Properly treated, however, a patient suffering from the alimentary

[1] Being the opening remarks at the debate on Diabetic and Non-diabetic Glycosuria at the Chelsea Clinical Society on March 10th, 1903.

[2] Transactions of the Pathological Society of London, vol. xxxiv., p. 348.

[3] See a case by Ashdown, Brit. Med. Jour., vol. i., 1890, p. 167; also Bial, Ueber Bildung und Ausscheidung der Glycuronsäure, Zeitschrift für Klinische Medicin, Band xlvii., Hefte 5 and 6.

[4] Futcher: Fusel-oil Poisoning with Special Reference to the Copper-reducing Substances eliminated in the Urine, American Medicine, August 10th, 1901.

[5] Bial's reagent consists of orcin, concentrated hydrochloric acid, and ferric chloride, equal quantities of the reagent and of the urine being taken. On just raising to boiling pentose gives a green-blue colour readily taken up by amyl alcohol and with a characteristic spectrum. If boiling is continued glycuronic acid gives the same reaction.

[6] Zum Symptomencomplex des Morbus Basedowii, Zeitschrift für Klinische Medicin, Band xlviii., Heft 1.

[7] Guy's Hospital Reports, vol. lvii., p. 133.

[8] H. Brat: Beitrag zur Kenntniss der Pentosurie und der Pentosenreaction, Zeitschrift für Klinische Medicin, Band xlvii., Hefte 5 and 6.

form may remain perfectly well for many years. Three months ago I saw a man, aged 62 years, whose urine had a specific gravity of 1036; it contained much sugar, gave no ferric chloride reaction, and he appeared perfectly well. He said that sugar was detected in 1885 and that he had dieted carefully for the last ten years. Such a case as this casts doubt on the view that hyperglycæmia is harmful. It is true that many a patient with this form of glycosuria has a little albuminuria and rigid arteries, that he is liable to gangrene or boils, and that he bears operations and illnesses badly, but are not all these, like the glycosuria, to be regarded as evidence of structural and functional decay rather than as due to the glycosuria? However, it must be remembered that the passage of sugar being a loss of energy is in itself harmful, but as the amount of sugar is usually small this loss of energy is generally unimportant. It is strongly in support of the above view that this form of glycosuria is met with chiefly in elderly people. There is sometimes a tendency to treat these alimentary cases too severely. It is not necessary to reduce the carbohydrates in the food beyond the point that leads to their disappearance from the urine. But the urine should be more carefully examined than is usually the case, for an alimentary lævulosuria[9] has been described. A complete record of such a case, giving the effects of the administration of dextrose and lævulose, would be very valuable and we should like information as to the value of Seliwanoff's test for lævulose.[10] To be strictly accurate we ought to speak of alimentary dextrosuria and alimentary lævulosuria as the case may be. It will be noticed that I have assumed (what I believe to be true) that while many patients with so-called alimentary glycosuria are really in the early stages of composite diabetes, yet others are examples of a much less harmful condition which always remains alimentary glycosuria, never passes on to composite diabetes, and lacks the serious metabolic phenomena of this disease. Whether this is so is a very fair subject for discussion.

The occurrence of sugar in the urine due to diseases or injuries of the nervous system is of little clinical interest. It is usually slight and transitory. If the nervous lesion causes coma and sugar is found in the urine the case may at first be mistaken for diabetic coma. I was called to a case not long ago in which this mistake had been made, but the failure to find either acetone or aceto-acetic acid in the urine showed the case to be one of nervous glycosuria. The patient died from cerebral hæmorrhage and it was found that blood had passed down the iter in the fourth ventricle. Dr. A. P Beddard has kindly directed my attention to a similar case[11] in which acetone chanced to be in the urine. Aceto-acetic acid was not looked for, but doubtless ferric chloride would have shown its absence. Testing for the ferric chloride reaction will always prevent a mistake between a nervous lesion causing coma with sugar in the urine and diabetic coma.

We now pass on to consider diabetes proper or, as Dr. Pavy calls it, "composite diabetes." This may be defined as a disease in which dextrose is present in the blood and urine and in which, if the disease is untreated, ultimately lævo-rotary β hydroxybutyric acid appears in the blood and urine and the output of carbohydrates in the urine is greater than can be accounted for by those in the food. By far the most important sugar in the urine is dextrose, but small quantities of lævulose, pentose, combined glycuronic acid, and other closely allied bodies are sometimes present. We know that there is a great excess of sugar in the blood and that this excess is very largely due, and probably in many cases—at any rate, in the early stages—entirely due, to the failure of the body to utilise the sugar, but even in many severe cases the power to utilise sugar is not entirely lost. But this is not in all cases the entire explanation of the presence of sugar in the blood, for in a severe case of diabetes there may be sugar in the blood and urine even if carbohydrates are entirely absent from the food. Such sugar must come either from proteids or fat and the prevailing opinion is that it comes from the proteids, for, in the first place, diabetics do very well on fat and, in the next place, only a little sugar could be produced even from a large amount of fat.[12] But it is clear that even in a case in which some carbohydrate is present in the food we cannot tell whether some in the blood may not have been derived from the tissues if the patient has not completely lost his power of utilising ingested sugar.

The next point of interest is not nearly sufficientl grasped—namely, that many diabetics can utilise lævulose much better than dextrose. Many observers have noted this and I have frequently observed it. It is said[13] that a diabetic patient soon loses his power to utilise lævulose, but I know that he may retain it for a long while and by examining the urine we can soon see when he is losing his power. This ability to utilise lævulose suggests that experiments might be made to see whether diabetics can utilise other sugars—e.g., pentose.

I have read many articles on diabetes which contain no reference to the extraordinary fact that, as was pointed out by Dr. Pavy many years ago and which I have often observed, a diabetic patient who is on strictly carbohydrate-free diet may, if a little carbohydrate is given, excrete far more sugar than that given. This is so important and so little known that I may be excused for quoting word for word from Dr. Pavy:[14] "The information supplied ..... goes to show that not only may starch and sugar ingested traverse the system unappropriated but that their ingestion may act in such a way upon the complaint as to give rise to the elimination of more sugar than could be derived from the principles themselves. Thus after sugar had for some days been entirely absent from the urine under restriction to an animal regimen two ounces of ordinary bread per diem were for a couple of days allowed and then the restricted diet again resumed. During the first day that the bread was taken the patient passed 117 grains of sugar and during the second 196 grains. The following day he passed 213 grains, the next 571, then 236 grains, and lastly 92 grains. After this there was an absence of sugar. By the four ounces of bread the elimination of 1425 grains of sugar was occasioned which is more than could be derived from the bread itself, for I found ..... the whole of the solid matter in the bread consumed only amounted to 1200 grains, against the 1425 grains of sugar discharged in the urine. Another point worthy of attention is that the elimination of sugar continued increasing for two days after the bread had been discontinued." Thus we see that the administration of sugar may act as a direct excitant of sugar formation in the body (presumably from proteid), and if in any case some of the sugar taken is utilised we have no means of knowing whether or not some of that in the urine is not derived from the tissues which have been excited to form sugar by the ingestion of carbohydrates. No explanation of the carbohydrate metabolism in diabetes will be satisfactory unless this fact is remembered.

Then, again, we want an explanation of the strange disappearance of sugar when coma comes on. This may be of great practical importance. Not long ago I saw with Mr. E F. White of Putney a patient who was not known to have diabetes; she became comatose in the course of influenza and the first specimen of urine examined contained no sugar, but we were put on the right path by finding an abundance of aceto-acetic acid. Many years ago I tried giving one or two patients syrup, but it had no effect on the coma and they did not live long enough for us to determine whether there was an increased output of sugar.

We much need information as to why the body fails to utilise dextrose. It has not lost the general power to oxidise—it can use fats, lactates in a diabetic are oxidised to carbonates, and benzol is oxidised to phenol. The only explanation which is open to us appears to be that usually offered—namely, that before the sugar can be oxidised it has to be prepared in some way and the diabetic lacks the power to do this. Many symptoms—e.g., polyuria, the high specific gravity of the urine, and pruritus vulvæ—can obviously be explained by the presence of sugar, but, as previously mentioned, I think many symptoms are ascribed to hyperglycæmia on insufficient evidence; for instance, we are told[15] that these "results of hyperglycæmia consist chiefly in a striking tendency to

[9] Rosin and Laband: Ueber Spontane Lävulosurie und Lävulosämie. Zeitschrift für Klinische Medicin. Band xlvii., Hefte 1 and 2.

[10] Seliwanoff's test is fully described in Rosin and Laband's paper. It consists in a bright red colour given after heating an equal part of urine with fuming hydrochloric acid and a little piece of resorcin. This reaction is only given by sugars allied to ketones and therefore by lævulose. Acetone although a ketone does not give it. There is no other body than lævulose which ferments and gives this reaction.

[11] Kraus: Lubarsch und Ostertages Ergebnisse, Band ii., S. 615.

[12] Hesse: Ueber Eiweissumsatz und Zuckerausscheidung des Schweren Diabetikers, Zeitschrift fur Klinische Medicin, Band xlv., Hefte 4 and 5.

[13] Socin: Wie verhalten sich Diabetiker, &c.. Dissert. Strassburg, 1894 (quoted by Bunge), Physiological and Pathological Chemistry, second English edition translated by F. A. Starling.

[14] Pavy on Diabetes, second edition, 1869, p. 241.

[15] Edsall: Proceedings of the Pathological Society of Philadelphia, Oct. 1st, 1901, p. 232.

infection and necrosis of the tissues." This may or may not be so, but considering the many ways in which metabolism in diabetes is perverted it appears rash to ascribe these results to the sugar. It is almost impossible to resist the temptation of believing that the wasting is due to the loss of energy in the urinary sugar. Many diabetics lose 500 calories of energy a day in their urine and it is said that they attempt to make up for this by utilising their proteids and fats and hence they waste. But as Bunge points out, this is a teleological argument and I think most of us feel that teleological arguments are dangerous. It would be a valuable observation to record the weight and nitrogenous excretion of a diabetic kept on a weighed ordinary diet but absolutely at rest in bed and therefore not requiring the energy lost in the urinary sugar. As sugar is chiefly consumed in the muscles it is supposed by some that the fault in diabetes lies in them and it has even been suggested that it is a good treatment for diabetics to do muscular work. Considering the loss of energy in the urinary sugar this hardly seems likely and it would be very valuable to have definite information.

In a debate on diabetes much attention must be given to the coma. It is even of greater importance than the glycosuria, for it is the commonest cause of death. At the present time the prevailing view is that the coma is in some way dependent upon the lævo-rotary β hydroxybutyric acid which is found in the blood of a patient in diabetic coma. It is excreted in the urine and even as much as 119 grammes have been said to be excreted in a day. β hydroxybutyric acid exists in three forms,[16] as inactive, lævo-rotary, and dextro-rotary; in the body aceto-acetic acid and acetone are formed from it and we usually infer its presence from finding one of these in the urine. The right-handed acid is more easily decomposed in the body than the left-handed which is the acid of diabetes. Two views prevail as to the way in which this acid acts to produce coma. One is that it or its precursor or its derivatives are directly toxic. Sternberg claims to have produced symptoms like those of diabetic coma by administering β amidobutyric acid which he regards as a precursor of β hydroxybutyric acid, but it must be remembered, as Magnus-Levy[17] points out, that the amido acids found in the body are of the alpha and not the beta group and, further, I do not think that the animals which were poisoned with β amidobutyric acid by either Sternberg or Grube appear from the written description to have had symptoms very like diabetic coma. Nor have these symptoms been satisfactorily produced by the administration of hydroxybutyric acid, aceto-acetic acid, or acetone, and, further, these bodies may be present without diabetic coma. The other view is that the hydroxybutyric acid, acting merely as an acid, diminishes the alkalinity of the blood, neutralising its sodium phosphate and carbonate, and hence the acid interferes with its power as a carrier of carbon dioxide, and the carbon dioxide consequently retained in the tissues is supposed to be the cause of the coma. About two facts there is no doubt. First, there is much oxybutyric acid in the blood and its alkalinity is much reduced. By distilling the urine with strong sulphuric acid crotonic acid is formed if oxybutyric acid is present; the presence of the acid has been in this way demonstrated by various observers and also in the last two cases of diabetes under my care. In both these, as many have found in other cases, the ammonia excreted in the urine was excessive and Herter[18] points out that the calcium and other bases in the urine are much increased when oxybutyric acid is present, showing that the lessened alkalinity of the blood has led to the calling forth of these bases from the tissues, and by estimating the ammonia and other bases in the urine he believes we can approximately learn the quantity of oxybutyric acid in the blood. As aceto-acetic acid is a derivative of oxybutyric acid we usually roughly infer its presence by the ferric chloride reaction. Secondly, there is no doubt that the carbon dioxide content of diabetic blood is abnormally low, as shown for example by Kraus.[19] My friend Dr. E. I. Spriggs has kindly allowed me to give some results which he has obtained in the physiological laboratory at Guy's Hospital, working with Dr. Beddard and Dr. M. Pembrey. The gas estimations of the blood from cases of diabetic coma gave from 14 to 23 volumes of carbon dioxide in 100 grammes of blood instead of from 40 to 50, the figures found for normal venous blood. The alkalinity of the serum varied from 0·04 gramme of sodium hydrate per cent. to 0·06, the normal being from 0·1 to 0·15. The blood of two diabetics who were not comatose was examined and it contained 24 and 33 volumes of carbon dioxide, so it was less than normal but not so much less as in the comatose cases. The carbon dioxide content of the urine, too, was diminished. But it has always seemed to me a far cry to argue that because there is little carbon dioxide in the blood therefore it is retained in the tissues, for blood could probably carry away in simple solution enough carbon dioxide to prevent toxæmia of the tissues by carbon dioxide, and this is quite supported by what Dr. Spriggs tells me, for he and his fellow experimenters found that blood from a case of diabetes can absorb carbon dioxide about as well as ordinary blood; thus on passing carbon dioxide through diabetic blood it took up from 200 to 300 volumes per cent. of carbon dioxide. This appears to show that the lack of carbon dioxide in the blood is not due to inability of the blood to take it up but may be owing to a low tension of carbon dioxide in the tissues in diabetes and especially in diabetic coma. Therefore it appears that in diabetes there is a poison which has two effects—namely, the production of coma and the lessening of the carbon dioxide in the tissues. What this poison is we do not know. That it merely acts as an acid is, I think, judging from experiments doubtful, but there is considerable evidence that it is closely associated in some way with oxybutyric acid (although, as already mentioned, it is very doubtful if oxybutyric acid itself, its known derivatives, or amidobutyric acid are the poison), for oxybutyric acid is always abundantly present both before and even more during coma.[20] This view, that the poison is in some way closely allied to oxybutyric acid, is strongly supported by the fact that sometimes coma is benefited by giving alkalies. I have seen distinct benefit follow and Magnus-Levy records an excellent case, but as this treatment in no way destroys the poison or prevents its formation, at best only neutralising its acid properties, we must expect it often to fail, as, indeed, it does. It is interesting in this connexion to learn that Dr. Spriggs did not find that the injection of alkalies increased the carbon dioxide content of the blood in two fatal cases of diabetic coma, which is what we should expect if we are right in believing that the carbon dioxide in the tissues is far below normal. I might in passing add that he found that in the last stages the administration of alkalies did not diminish the proportion of ammonia in the urine.

Much discussion has taken place as to the origin of the β oxybutyric acid. It does not come from carbohydrates, for it may be present when they are withheld from the food and are absent from the urine. Until recently it was thought to come from proteids, now some suggest it is derived from fats, and again Magnus-Levy suggests that it is formed by breaking down of both fats and proteids.[21] If it does come from proteids the metabolism which leads to it is probably different from that leading to sugar, for a strong ferric chloride reaction may be present in the urine even after sugar has quite disappeared. I have noticed this in children and if oxybutyric acid is derived from proteid we learn that, at any rate, not the whole of the abnormal proteid metabolism is to compensate for loss of energy in urinary sugar. Until we know the source of oxybutyric acid we shall probably not know how to avoid coma. Grube[22] believes it is likely to appear if butter is taken but not after pork. This hardly seems likely, considering how well diabetics take butter. There seems no doubt that casts often appear in the urine in enormous numbers, especially before coma. It will be of great interest if we can learn something of their origin and prognostic value.

The sugar and oxybutyric acid in the urine are not the only evidences of perverted metabolism, for sometimes the blood is of a peculiar salmon or strawberry-and-cream colour, a fact quite ignored by many who write on diabetics. Usually the blood is said to be fatty. Some analyses have shown a considerable amount of fat and in some of the published

[16] McKenzie: The Resolution of β Hydroxybutyric Acid, &c., Journal of the Chemical Society, November, 1902, p. 1402.
[17] Magnus-Levy: Archiv für Experimentelle Pathologie und Pharmakologie, Band xlv., Hefte 5 and 6.
[18] Herter: Lectures on Chemical Pathology.
[19] Lubarsch und Ostertages Ergebnisse, &c., 1895, Band ii.
[20] Herter: Acid Intoxication of Diabetes in its Relation to Prognosis, Journal of Experimental Medicine, vol. v., No. 6, 1901. Magnus-Levy, op. cit.
[21] Op. cit.
[22] Grube: Zeitschrift für Diätetische und Physikalische Therapie, Band vi., Heft 2.

cases[23] globules stained with osmic acid were present, but even then there was a quantity of granular matter, and a case I have been recently studying and which I hope soon to publish seems to show that the blood may be of quite a pale strawberry-and-cream colour and yet contain no fat staining with osmic acid but a quantity of granules which appear to be proteid precipitated by the presence of an ester of cholesterin with one of the fatty acids. The altered colour of the blood may be easily visible in the retinal arteries and it may slowly pass away as the patient improves.

Turning to the morbid anatomy of composite diabetes we know that the brain, spinal cord, and nerves show no naked-eye or histological changes sufficiently often for such to be regarded as the cause of diabetes. I have frequently examined these and the sympathetic ganglia with negative results.[24] But speaking of the nervous system reminds us that the explanation of the fact that the knee-jerk is absent in 50 per cent. of diabetics is difficult considering how rare other symptoms of neuritis are. There are often striking changes in the pancreas. During 14 years at Guy's Hospital out of 6702 necropsies the pancreas was diseased to the naked eye in 142[25] and in 19 of these the diseased pancreas was associated with diabetes. An examination of all the fatal cases of diabetes showed that in a quarter naked-eye disease of the pancreas was present. In 16 out of the 19 the gland was much atrophied, shrunken, and indurated, and this is, I think, the typical pancreas of diabetes; of the remaining three in one the gland was atrophied as a result of a pancreatic calculus and in one it was large and indurated. Hausemann analysing the figures at the Berlin Pathological Institute found in ten years disease of the pancreas with diabetes 40 times and of these cases in 36 the gland was atrophied. There appears no doubt that destruction of the islands of Langerhans is of great importance in connexion with diabetes. A collection of cases by Steele[26] which has been recently published shows this. Of course, it is well known that diseases which only partially destroy the pancreas do not cause diabetes. Three points on which we want information in this debate are—(1) is alteration in the islands of Langerhans the essential feature of the pancreatic disease which causes diabetes? (2) can we during life tell which cases have and which have not pancreatic disease? and (3) what is the relationship of the internal pancreatic secretion to diabetes?

Passing to the subject of treatment I need not urge the advantages of withholding carbohydrates from the food, for by doing so the patient gains strength and weight; and the excretion of sugar and oxybutyric acid diminishes at any rate in most cases, but sometimes I have obtained an intense ferric chloride reaction even after weeks of strict diet and even when the sugar has disappeared from the urine. It often seems to me that in many cases dieting has been too strict and as a rule there is at any rate no harm in milk. In any case I would suggest that when diet will not completely control the glycosuria the patient should be allowed just so much carbohydrate as will not increase the sugar in the urine and when diet will control it he should be allowed carbohydrate food up to just below the point at which it leads to glycosuria. Lævulose is certainly the best carbohydrate; it may be given up to any quantity so long as it does not cause or increase the glycosuria. Inulin, which is the starch corresponding to lævulose, may also be given; it occurs in dahlia tubers and these may be cooked and eaten like potatoes. There is a pernicious belief among some patients that toast may be taken instead of bread. I need hardly say that this is not so. Although there are many reasons against alcohol yet in a severe case advantage may be taken of its energy-yielding power provided it is unsweetened. Many cases are probably not allowed enough fat. We should all be agreed that too sudden a deprivation of carbohydrates may lead to coma, but why this is we do not know, nor do we understand the undoubted and very important fact that coma is often brought on by exertion, worry, or mental anxiety. Unfortunately we are much in the dark as to the treatment of coma. As is shown by cases recorded by Fagge, the injection of normal saline solution will sometimes bring the patient out of coma, but he relapses again in a few minutes. Better still is the use of large quantities of alkali. If a patient feels a little drowsy it is a good thing to order 100 grains of bicarbonate of sodium or 50 of the carbonate dissolved in a pint of milk and for him to drink three or four such pints in the 24 hours. If the coma is deeper a solution of sodium bicarbonate may be injected subcutaneously, so that at least 200 grains are given at the first injection, or I have given it per rectum, but that is much less certain. If the case is at all severe, with an abundant ferric chloride reaction but no coma, I am accustomed to order some 50 to 100 grains of bicarbonate of sodium to be dissolved in milk and taken during the day. From cases I have watched I am certain that this treatment is useful, and I think that it sometimes tides over a time till the good effect of dietetic treatment is felt. It often fails to save life, but then we must remember that it does not stop the formation of the poison. It is evidence in support of this view that diabetics often appear to derive much benefit from alkaline waters. The bowels of these patients should be kept well open, for by that means we may eliminate some of the poison; possibly the abdominal pain and vomiting which so often herald coma should be interpreted as an attempt to rid the body of the poison by way of the gastro-intestinal tract. There appears to be no doubt that both morphia and codeine can diminish the excretion of sugar; it will be of interest to hear why they are used less than they were. Aspirin is said to act beneficially in some cases, and I hope we may have some evidence for or against it. Dr. A. E. Garrod told me of a child, aged seven years, who on fixed diet was excreting 30 grammes of sugar a day; she was put on 15 grains of aspirin a day and the excretion of sugar fell, varying from six to ten grammes. After a week the aspirin was stopped and the excretion of sugar fell to two or three grammes a day. It must be remembered that aspirin, being a salicylate, will itself give a ferric chloride reaction. I have tried feeding diabetics on pancreas[27] and have injected liquor pancreaticus subcutaneously but without success, nor does the use of Professor Starling's secretin appear to be beneficial. The treatment of the many associated conditions is beyond the scope of these remarks, but I cannot resist asking whether the number of cases of diabetic phthisis has not diminished of late years. I think that it will be found that it has.

The last point to which I would direct attention is whether we are not under the word "diabetes" really describing more than one disease; for example, are some cases due to disease of the pancreas and some not? are those that have so-called fatty blood different from those that have not? are those in which glycogen is present in the liver different from those in which it is absent? In conclusion, I need hardly say I am well aware that in these few remarks many points of great interest have not been touched upon, but as the subject is so extensive I have confined myself to indicating, although very imperfectly, those which appear in the present state of our knowledge to be the more important.

[23] Sanders and Hamilton: Edinburgh Medical Journal, July, 1879.
[24] Diseases of the Sympathetic, Guy's Hospital Reports, vol. xlvi.
[25] Diseases of the Pancreas, Guy's Hospital Reports, vol. liv.
[26] American Journal of the Medical Sciences, July, 1902, p. 71.
[27] Brit. Med. Jour., March 4th, 1893.

THE USE OF SALICYLIC ACID AS A PRESERVATIVE IN FOOD.[1]

BY C. J. MACALISTER, M.D. EDIN., M.R.C.P. LOND.,
PHYSICIAN TO THE ROYAL SOUTHERN HOSPITAL, LIVERPOOL, ETC.;
AND
T. R. BRADSHAW, B.A., M.D. DUB., M.R.C.P. LOND.,
PHYSICIAN TO THE ROYAL INFIRMARY; LECTURER ON CLINICAL MEDICINE IN UNIVERSITY COLLEGE, LIVERPOOL, ETC.

IN the course of the past two years our opinions have been sought with reference to the harmfulness or otherwise of the ingestion of small amounts of salicylic acid for prolonged periods and we have consequently been interested in making a careful investigation as to the effects produced by this substance, especially upon the nutrition and upon the digestive processes of the economy; for it is mainly upon these that injurious effects are said to have been exerted. We have been the more interested in our endeavours to gain information upon this matter because it has been evident to us that some industries have suffered considerably by the exclusion of salicylic acid as a preservative from their

[1] A paper read before the Liverpool Medical Institution on Nov. 26th, 1902.

manufactures, and because on sifting the evidence which has been given in various courts and before Parliamentary committees we have found that its foundations have been of the vaguest description, often depending less upon actual observations upon the results of taking salicylic acid itself than upon the results of taking other antiseptics which are supposed to be stronger or weaker—whatever these terms may mean. Thus we have heard it argued that salicylic acid is ten times stronger than carbolic acid as an antiseptic, implying that it is equally or more toxic, and the natural inference would be that because 20 grains of carbolic acid cannot be taken without doing harm therefore 20 grains of salicylic acid could not be taken without doing as much or more harm, which, of course, is absurd. In fact, it has been so obvious that no definite evidence of harm having come of the prolonged administration of salicylic acid has been obtainable and the arguments adduced in support of its harmfulness have been so indirect and so misleading, that we make no apology for bringing this matter before our professional brethren.

In a Parliamentary inquiry one expects to find direct evidence bearing upon a matter of this kind which is of vital importance both to the public and to the manufacturer, but we have searched through the recently issued Blue-book only to discover conflicting evidence and an inconsistent "finding" that one grain of salicylic acid per pint or per pound is permissible in food-stuffs. We can find nothing to explain how this permissible strength was arrived at or why two, three, ten, or more grains per pint should not be used. No distinction is made between the amount allowed in a pint of cider or other food-stuff taken in large quantities and that permitted in a pint of any material of which perhaps only an ounce or two, or even less, would be taken at a time.

Some of the witnesses frankly admit that salicylic acid can be taken in doses of from five to 15 grains without any harm resulting. The majority of those who are opposed to its use as a preservative are content to assert that its use, as such, ought not to be permitted, without alleging any special harm which could be expected to arise. Dr. J. S. Cameron, however, commits himself to the positive statement that it is a "frightful depressant," but allows that injuries alleged to have followed the use of small doses were due to impurities. Dr. W. H. Corfield thinks that it is cumulative but admits that he has had little practical experience of its administration. The most elaborate attack on its use as a preservative is that of Dr. J. Dixon Mann, and as his is a fair sample of the kind of evidence on this point which was accepted in the inquiry we make no apology for quoting it at length. He says (2611): "Last year in the summer, at lunch in the club, I took to drinking cider, and I got an acquired taste for the cider and continued taking it for many weeks. I began to feel a peculiar tendency to looseness in the bowels, not a diarrhœa, but a distinct looseness in the bowels; furthermore, I felt never, as it were, thoroughly relieved after motions. This went on for a time and I could not understand how it was. I thought it was accidental in the first place, but it kept going on week after week. I did not care to take any medicine and I began to cast about for what possibly could be the cause of it. I went over the things I had been in the habit of taking and the things I was taking at the time. I could not think of anything until it struck me about this cider; so I ceased taking the cider and in two days I was all right. I got a bottle of the same sort from the steward of the club, took it to my laboratory and found salicylic acid in it and, needless to say, I have not taken cider since."

With regard to this evidence we take the liberty to point out that cider is a drink which cannot be taken with impunity by everybody and that symptoms such as those which have just been described are not uncommon among those who visit, and take the drink of, the cider-making counties. We certainly have never heard of, or experienced, similar symptoms from the taking of salicylic acid itself or of the food-stuffs which we have known to contain it. It is obvious that to establish the conclusion that it was the salicylic acid in the cider and not the cider itself which caused the symptoms complained of it would be necessary to make control experiments by taking the same quantity of salicylic acid without cider for some days and by taking cider free from salicylic acid for a similar period.

It is not our intention on this occasion to approach this subject altogether in reference to the Sale of Food and Drugs Act; there are points in connexion with that Act which have a purely legal bearing. For instance, we find that magistrates have not been satisfied with the evidence that salicylic acid is an injurious substance, and cases fought on this ground have been dismissed, so that now prosecutions are often based upon the fact that the foods preserved with salicylic acid are not of the nature, substance, and quality of the article demanded by the purchaser, although the law provides that an offence shall not be deemed to have been committed where any matter or ingredient not injurious to health has been added to the food or drug because the same is required for the production or preparation thereof as an article of commerce, *in a state fit for carriage or consumption and not fraudulently to increase the bulk, weight, or measure of the food or drug, or to conceal the inferior quality thereof.*

We have found that it is contended that salicylic acid is injurious to health for three principal reasons: (1) that it is an antiseptic and anti-fermentative and is therefore liable to interfere with the digestive processes by destroying the digestive ferments; (2) that after absorption it is apt to injure the general health and to interfere with nutrition; and (3) that it is an irritant and is therefore apt to injure the mucous membrane of the stomach and intestinal canal. It will be convenient, perhaps, to consider the results of our inquiries under these headings; but, in the first place, although it should hardly seem necessary, we would point out that the greatest confusion has arisen through the use of the term "anti-fermentative" which has been very loosely applied by those who have given evidence concerning this class of food preservative. In nearly every case it has been asserted that because salicylic acid is an antiseptic and anti-fermentative it therefore of necessity interferes with digestion, and it is very generally inferred that because it undoubtedly in virtue of these qualities prevents decomposition, bacterial infection, and alcoholic and other kindred fermentations due to organised living bodies, it must therefore prevent the activity of the fixed or chemical ferments in the body which have for their function the transformation of starches into sugars and of proteids into peptones, or, in other words, which constitute the processes of digestion. In short, the objectors make no distinction between the processes of digestion on the one hand and those of putrefaction and fermentation on the other.

In this inquiry we have nothing to do with the organised living ferments; these are certainly killed by salicylic acid and its efficacy as a food preservative depends upon that very fact; but we have found that the digestive processes will proceed in the presence of the acid even in a solution of 1 in 500 which is practically saturated.

Our first experiment was made with pepsin which, if active, should dissolve 2500 times its weight of hard-boiled white of egg and the Pharmacopœia provides the following test for its activity: If 12·5 grammes of coagulated and firm white of egg, 125 cubic centimetres of acidulated water containing about 0·2 per cent. HCl, and 0·005 gramme of pepsin be digested together at 105° F. for six hours and shaken frequently, the coagulated white of egg should dissolve, leaving some flakes in the solution. Having ascertained the activity of a specimen of pepsin by this experiment we repeated it in two flasks each containing the above specified ingredients in their proper proportions, but to one of the flasks 0·250 gramme of pure salicylic acid (which had previously been dissolved in eight cubic centimetres of boiling water) was added, and at the end of six hours it was found that in the flask containing salicylic acid there was only a small amount of white of egg left, none being left in the other flask. This experiment was repeated three times and after one of them the residues were weighed, when it was found that there was a difference of not more than 0·024 gramme.

To confirm the conclusions indicated by the Pharmacopœial test we have carried out the peptic digestion of albumin in the manner recently introduced by Mett, brought to our notice by Professor Moore of University College, Liverpool. The albumin to be acted on is coagulated in a glass tube open at the ends and the activity of the digestive process is readily estimated by observing the extent to which the albumin is dissolved from one end of the tube, preferably the upper end. Three test-tubes were employed. No. 1 contained 1 per cent. of pepsin dissolved in 0·2 per cent. of HCl in distilled water, No. 2 contained the same with the addition of 0·2 per cent. of salicylic acid, and No. 3 contained the same as No. 2, only 0·2 per cent. of NaCl was substituted for the salicylic acid. A piece of Mett's albumin tube was added to each

test-tube and all three were placed in a water bath at 40° C. After 12 hours a considerable amount of digestion had taken place; that in tube No. 1 was slightly greater than in the others. That in the tube containing salicylic acid and that in the tube containing NaCl were practically the same.

As regards the influence of salicylic acid on pancreatic digestion it must be borne in mind that the latter cannot take place in an acid medium. The addition of a trace of vinegar, of citric acid, or even of the hydrochloric acid secreted by the stomach will arrest it, and we know that the pancreatic juice is strongly alkaline and neutralises the acid contents of the stomach when they enter the small intestine. It would therefore be absurd to put salicylic acid into an artificial pancreatic digestive fluid, so we experimented with salicylate of sodium in quantities equivalent to 0·2 per cent. of the acid, using the method advised by the late Sir William Roberts for estimating the strength of amylolytic ferments, and we have ascertained that salicylic acid in neutral solutions has absolutely no retarding effect whatever on the conversion of starch by the amylolytic ferment of the pancreatic juice.

We may sum up this part of our paper by stating that we have found that salicylic acid exerts about the same retarding influence on the digestive processes as do many articles, such as kitchen salt, which are always present in a mixed diet.

It is generally admitted by physiologists that the digestive enzymes such as pepsin and the ferments of the pancreatic juice act most energetically in distilled water to which the appropriate acid or alkali alone has been added and that the addition of other substances of almost any kind has a more or less retarding influence on their activity. It is obvious, however, that the former condition can never obtain in natural digestion; the diet of civilised man contains a multitude of ingredients, most, if not all, of which would probably be found to delay artificial digestion. The question therefore is not whether salicylic acid delays digestion at all, but whether it does so to a greater extent than other bodies, such as kitchen salt, which form part of an ordinary diet.

We must point out that in making our experiments on digestion we have always given the benefit of the doubt to our opponents and have employed the strongest solution of salicylic acid which can be made in the cold, a condition which never could be present in the stomach. It is obvious that even if the individual drank only beverages saturated with salicylic acid they would soon be diluted by the gastric juice; but, as a matter of fact, any beverages which we have encountered containing any such proportion of the acid were meant to be freely diluted with water before they were consumed. We further submit that the taste of salicylic acid is so pungent that no article which contained it in a proportion approaching one grain per ounce would command a sale unless it was intended that it should be freely diluted with water before consumption.

The second problem which we have to consider—viz., the effect produced by salicylic acid upon nutrition—is one that cannot very well be elucidated by laboratory experiments and we have felt that the only practical method of investigation was to take it ourselves and to give it to others. One of us took a dose of five grains of the pure acid every day for a month without any ill-health ensuing and a smaller quantity given to children every day with their dinners (in a foodstuff known to contain it) certainly did them no harm. They remained as bright and active as ever and underwent no wasting. This we regard as a more convincing test than observing the result of administering to young animals milk saturated with salicylic acid. In the first place salicylic acid has a strong taste and cats are notoriously sensitive to an unaccustomed flavour in their food and we doubt whether the animals which have been the subjects of these experiments really took the milk provided for them at all. If this were so they lost weight from starvation and not from the salicylic acid which they did *not* take. In the second place salicylic acid was mixed with all the food which was given to the animals, so that the proportion of salicylic acid to their total ingestion was enormous. No one has proposed that preserved foods should constitute the sole or even a large portion of a dietary.

It is a curious circumstance that insects do not appear to be harmed by taking salicylic acid dissolved to saturation in syrup. Binz refers to its beneficial action in the case of bees when affected by "foul brood," a highly contagious disease caused by a microscopic schizophyte which apparently attacks the insects both internally and externally. Whole hives become infected by this fungus and become putrid. It has been found that if the bees are fed with syrup containing about 0·16 per cent. of salicylic acid the disease completely disappears and the insects recover their normal activity and vigour.

Lastly, we have to consider whether salicylic acid causes any injury to the gastro-intestinal mucosa and a very few words will serve to dispose of this question. In the first place it is well known that in the early days of the treatment of acute rheumatism with the salicylic preparations large doses of the acid were employed, but no indications of irritant poisoning are recorded. Kolbe, for instance (quoted by Binz), while directing attention to its strongly antiseptic qualities, states that it is not poisonous to human beings and in proof of this he took himself and gave to other persons from 1·0 gramme to 1·5 gramme—i.e., from 15 to 23 grains—a day, in some cases for nine months together, without apparent injury, and we have already mentioned that we have observed no ill-effects from taking it ourselves or from administering it to other healthy individuals.

The objection that salicylic acid is injurious to mucous membranes appears to be based on the circumstance that it is destructive to epidermic structures when applied to them in concentrated form. We must direct attention to the fact that hydrochloric acid, acetic acid, &c., in their pure forms are not only irritant but intensely corrosive; if a drop of pure hydrochloric acid, which is a far stronger acid than salicylic acid, were put upon the mucous membrane of the stomach it would destroy it, and yet this acid diluted to 0·2 per cent., which is the same concentration as that of the salicylic acid found in some food-stuffs, is essential to digestion, which cannot go on without it.

We have found another objection put forward to the use of preservatives which when reduced to the form of a syllogism is as follows:—

> Antiseptics kill protoplasm (in bacteria);
> The human cells are protoplasm;
> Therefore antiseptics kill the human cells.

It might be sufficient to reply that when the antiseptic enters the body it becomes so much diluted that its action on the protoplasm of the body would become infinitesimal; but a more complete answer is found by pointing out that there is a fallacy in the argument consisting in the assumption that a substance which has a deleterious action on one kind of protoplasm must act detrimentally on all kinds. Not only is there no proof of this assumption but we have strong evidence to the contrary. Among bacteria themselves there is great diversity. Some micro-organisms require oxygen for their growth, while others are killed by it. Most forms of life are destroyed by arsenic, yet there is a fungus which grows in solutions of that poison. Quinine is potent to destroy the protozoa of malaria even when enormously diluted in the blood; we are not aware that it has ever been shown to act deleteriously on the normal cells of the human body. Fresh air and sunshine give vigour to all the higher forms of life: they are fatal to the germs of tuberculosis and of other diseases.

There is one aspect of the question of the use of preservatives in food which has not received the attention which it deserves and which we desire especially to emphasise. As we have seen, authorities differ as to the harmlessness or otherwise of antiseptics, but they are all agreed as to the harmfulness of food in a state of decomposition. Now with regard to such luxuries as preserved fruit, non-alcoholic wines, and similar articles of diet, it is clear that if the poorer classes who form the bulk of the population in our great cities are to be enabled to enjoy them they must not only be produced at a moderate cost but must be put on the market in a condition in which they can be used economically. Even if we grant that such articles as fruit juices could be sterilised without impairing their flavour and dietetic value it is clear that they would begin to decompose very soon after they were opened and the inevitable waste would be a bar to such articles being used. Further, there would always be a doubt as to whether or not the substance had gone bad and we should constantly be meeting with cases in which it had been consumed after it had gone too far. In short, we hold that it is safer to have a little more antiseptic than is absolutely necessary rather than to have too little.

It is hardly necessary to say that the stronger wines, such as port and sherry, can be used economically, owing to the

large amount of antiseptic—namely, alcohol—which they contain, and the need for antiseptics, such as salicylic acid, is largely due to a commendable desire on the part of a large proportion of the public to have wholesome and agreeable beverages free from the risk of the moral and physical evils which too often attend the use of alcoholic drinks.

We desire to make it clear that we are not now discussing the recommendation of the Commission that the law should be altered so as to require manufacturers to state the nature and amount of the preservative, whatever it may be, which is present in certain articles sold. The practical point at issue between us and the Commission is that the latter, though allowing the use of salicylic acid, would limit it to one grain per pint, while we maintain that if a larger proportion is necessary for the manufacture and preservation of the article there is no valid reason why it should not be employed. It is scarcely necessary to insist on the fact that if a preservative is to be used some articles will require more of it than others and it by no means follows that the article most difficult to preserve is the least valuable and nutritious. Thus, to take an extreme case, let us suppose that there is a demand for a temperance beverage with a flavour of raspberries. Such a beverage can be produced in a variety of ways. It may be prepared by pressing out the juice of raspberries with such additions as are necessary to render it sufficiently fluid and agreeable to the taste, or it may be prepared without the help of any fresh fruit at all, using a chemical body, the so-called essence, to give the distinctive flavour. It is clear that the latter being free from nitrogenous matters will be much more easily preserved than the former, though the former would certainly be the more agreeable beverage and would approach much more nearly to the characters of natural fruit. We are convinced that one effect of the arbitrary limitation of the amount of preservative allowed will be to force manufacturers of the so-called non-alcoholic fruit wines and other temperance beverages to employ artificial flavouring bodies prepared in the laboratory instead of the natural juice of the fruit. One noted firm, harassed by successive prosecutions, has written to us as follows: "We are now in the strange predicament of being compelled to discontinue the use of the nutrient article and use a substitute rather than that an antiseptic be used. But the game of fighting when, win or lose, one cannot recover expenses, is too one-sided to be interesting, especially as the other will pay us at least quite as well." We have also good authority for alleging that another result of these prosecutions is to set manufacturers to work to discover antiseptics which cannot be recognised by the analytical chemist and we are informed that such an antiseptic is already employed by one firm. It is surely in the interests of the public that an antiseptic should be employed the presence and amount of which can be determined and the properties of which are generally known rather than one which cannot be detected when it is present and of the properties of which we know nothing.

To refute a popular error is often a thankless task; to refute an error sanctioned by tradition and authority will generally excite obloquy and opposition. When, however, an error is maintained as if it were the result of the deductions of the most enlightened scientific investigations and is supported by names eminent in science and medicine the task of opposing it is not alone thankless and unpopular but is likely to be stigmatised as retrograde and reactionary. Nevertheless, we have felt it to be our duty to place on record our conviction that the allegations which have been made against the employment of salicylic acid as a preservative in moderate quantities cannot be maintained. We challenge the opponents of its use to bring forward a single instance in which it can be shown that bodily injury has resulted from its employment in such a manner, and we deny that in the proportion in which we have met with it in articles submitted to us for examination it could be taken by any rational beings to such an extent as to do them any harm whatever. We further maintain that the use of this substance enables manufacturers to place on the market wholesome, agreeable, and inexpensive articles of food which form an acceptable and beneficial variety in the diet of persons who cannot afford more costly luxuries and which, above all, supply the place of intoxicating drinks. This is the position which we maintain and we state it after mature consideration and with, we trust, an adequate sense of responsibility.

CONCERNING ANTI-STREPTOCOCCIC SERUM AND ITS USE IN MALIGNANT ENDOCARDITIS.

BY CYRIL OGLE, M.B. OXON., F.R.C.P. LOND.,
ASSISTANT PHYSICIAN TO, AND LECTURER ON PHARMACOLOGY AND THERAPEUTICS AT, ST. GEORGE'S HOSPITAL, LONDON.

THE therapeutic value of injections of anti-streptococcic serum may be said to be still uncertain. This seems to be due, in great part, to the indiscriminate way in which it has been tried and the results have been recorded. It appears to be established, by laboratory experiments, that this serum (1) is of such a nature as to be of value against streptococci only, and probably only against that variety or those varieties of streptococci by means of which it had been prepared; and (2) that it leads to the destruction of these organisms and does not merely neutralise toxic products, as does anti-diphtheritic serum, for example, in the case of diphtheria—that is to say, it is directly or indirectly germicidal and not antitoxic in its action. In order to demonstrate the value of this treatment, therefore, it should be shown that the above conditions have been fulfilled. In most examples recorded of its use this has not been kept in mind.

Many striking recoveries from grave conditions of sepsis treated by injections of anti-streptococcic serum are to be found, but they are chiefly puerperal cases, evidently due to sapræmia resulting from the absorption of toxins from the foul interior of the uterus, and their recovery may as properly be attributed to the local measures of disinfection adopted as to the subcutaneous injections of the serum. Others are, in similar fashion, complicated by the presence of a local abscess, subcutaneous, about the appendix, or in connexion with the ear, also amenable to direct local treatment. Others, again, are most probably a general infection with gonococci, which, though severe, often recover under ordinary general treatment.

The evidence in favour of the serum treatment in the case of erysipelas is, perhaps, more convincing, as that disease is known to be associated with streptococci of some variety or of particular virulence and the treatment is usually only applied to severe cases. But one would like to know whether the graver general symptoms met with in certain examples of this disease are due to the circulation of cocci in the blood stream, as, if so, the serum treatment would be the more clearly indicated and cases of recovery would be the more striking.

As regards malignant endocarditis, local treatment of the valves is unfortunately impossible and the only way, during life, of proving the presence of streptococci is by finding them in the blood and the only strict proof of the efficacy of the serum treatment, or of its failure, would be by recovery of the patient after thus finding them or by displaying them after death in the blood and in the vegetations. The examples of malignant endocarditis treated with this serum appear to be few and the number investigated in this manner to be very few. It is possible, of course, that some cases ending in death, although examined for bacteria, have not been published and this is to be regretted.

In this connexion it seemed that it might be of interest to collect and to analyse the cases of treatment by anti-streptococcic serum published, or alluded to, in THE LANCET and in the *British Medical Journal* during recent years (from 1896 to 1901 inclusive). They amount to between 100 and 110 in number, including more than 70 recoveries, and on reading them it is difficult to avoid coming to the conclusion that the injections really contributed greatly to the favourable results recorded; but as no examination was made in most cases to show the presence or absence of streptococci in the blood stream, nor even in the local condition, these cannot be adduced as very strong evidence of the value of the serum treatment, nor can the deaths be attributed to its failure. In a few cases streptococci were shown to be present in the local condition, although the blood was not examined during life; and here the evidence in favour of the injections is more conclusive. In 13 cases streptococci were found during life, even in the blood stream, as shown in Table I.

It is almost impossible by means of a table to convey an impression of the gravity of these latter; but, as might be expected, they were all severe and were marked often

TABLE I.—SHOWING THE CASES IN WHICH ORGANISMS WERE DEMONSTRATED IN THE BLOOD BEFORE THE USE OF ANTI-STREPTOCOCCIC SERUM.

Case.	Nature of disease.	Under care of—	Blood examination during life.	Commencement of treatment and amount of serum used.	Result.	Observations.	Reference.
1	Sepsis from ear suppuration.	Low and Ballance.	Streptococci in the blood; one cubic centimetre of the culture killed a rabbit in 48 hours.	Begun at a week from onset; 263 cubic centimetres in six days; on one day 67 cubic centimetres.	Recovery.	Drowsy and moribund.	THE LANCET, March 19th, 1898, p. 779.
2	Puerperal.	Nathan Raw.	Streptococci in the blood and in the placental tissue.	From the fifteenth day; 60 cubic centimetres in four injections.	,,	Unconsciousness; temperature of 106° F.; pulse of 146.	THE LANCET, July 9th, 1898, p. 81.
3	Erysipelas.	,,	Streptococci swarming in the blood.	From about the sixth day; 80 cubic centimetres in four days.	,,	—	Ibid.
4	Mastoid abscess and meningitis.	,,	Streptococci in the blood.	Within a few days; 50 cubic centimetres in all.	,,	Prolonged illness.	Ibid.
5	Puerperal.	,,	Streptococci in the blood and discharge.	Within a week; 50 cubic centimetres in all.	,,	Periostitis and pyæmia.	Ibid.
6	,,	,,	Staphylococcus aureus and albus in the blood and discharge; streptococci absent.	Only one injection of 20 cubic centimetres of anti-streptococcic serum.	Died. Post mortem, staphylococci but no streptococci were present.	Mixed infection.	Ibid.
7	Middle-ear disease, with pyæmia.	Ramsay.	Streptococci numerous, with a few staphylococci on the fifteenth day; no organisms on the twenty-eighth day.	From the fifteenth day; 205 cubic centimetres in eight days.	Recovery.	Rigors and secondary abscesses.	THE LANCET, Oct. 22nd, 1898, p. 1056.
8	Pyæmia from the throat.	Wible.	Streptococci in large numbers in the blood which afterwards disappeared. Slough in the throat with pure streptococci.	From about the fifteenth day; 345 cubic centimetres in nine days; 10 cubic centimetres every four hours at first.	,,	Convulsions; coma.	THE LANCET, Feb. 11th, 1899, p. 373.
9	Puerperal.	Grimsdale.	Streptococci in the blood on two occasions.	From the ninth day; 150 cubic centimetres in 15 days.	,,	No local treatment.	THE LANCET, Jan. 21st, 1899, p. 165.
10	,,	,,	Streptococci in the blood.	From the ninth day; 170 cubic centimetres in 22 days.	,,	Illness of about four weeks. No local treatment.	THE LANCET, Sept. 9th, 1899, p. 719.
11	,,	Lea.	Streptococci in the blood.	From the tenth day.	Died.	Death on the thirteenth day.	THE LANCET, August 12th, 1899, p. 445.
12	Septicæmia.	Bonney.	? Gonococci in the blood.	420 cubic centimetres in 17 days.	Recovery.	Probably gonococcal septicæmia.	THE LANCET, June 2nd, 1900, p. 1591.
13	,,	Coleman and Wakeling.	Streptococci in the blood.	10 cubic centimetres every four hours at first; free use for 20 days.	,	Delirium with a temperature of 104·6° F.	Brit. Med. Jour., vol. ii., 1896, p. 647.
14	Lymphangitis.	Bokenham.	Streptococci and other organisms in the blood.	From the third day; 102 cubic centimetres in four days.	Died.	Mixed infection.	Brit. Med. Jour., vol. i., 1897, p. 1277.
15	Puerperal.	Parrott.	Streptococci in the blood.	From the third day irregularly; 60 cubic centimetres in ten days.	,,	—	Brit. Med. Jour., vol. i., 1901, p. 145.

by rigors, high temperature, sweats, rapidity of pulse, and delirium. The fact that so many patients have recovered from such a state when combined with living streptococci freely present in the circulation would undoubtedly point, I think, to the great value of treatment by this serum when applied under proper conditions—that is to say, when it had been previously shown that streptococci and not other organisms were present.

In Table II. is a list of cases of malignant endocarditis in which the serum was used and in which an attempt was made to identify the organisms present. Any evidence afforded by Table II. would at first sight seem to be unfavourable to the serum treatment, but it should be remarked (1) that several records with favourable issue are not included in the table, as, although very possibly examples of malignant endocarditis, the nature of the organism or the involvement of the valves remained uncertain; (2) that in many of the cases the serum was really inapplicable on account of the infection being either a mixed one or due to other organisms than streptococci (as in Cases 6, 7, 8, 9, 10, 11, and 16); and (3) that in those associated with pure streptococci some of the failure may be attributed to the small dosage employed, to the irregularity of its administration, and to the late date at which it was begun, more especially if it be recognised that there is at first probably a general septicæmia with subsequent infection of the valves.

It may be that malignant endocarditis, with streptococci present not only in the blood but, as a colony, in the vegetations bathed by the blood stream, is beyond the power of serum treatment in most instances; but examples such as Nos. 1 and 13 and, perhaps, 5 and 15, would seem to prove that this is not inevitably so; cases, moreover, certainly vary much in the rapidity of their course and in virulence. One would urge, therefore, that an earlier examination of the blood should be made in a suspicious case with irregular temperatures not amenable to ordinary treatment and that the examination should be a thorough one, not merely of a drop or two of blood, but of half a drachm or a drachm, incubated in sterile bouillon at the earliest moment, and that if streptococci be then found, freshly prepared "polyvalent" serum should be used very freely and continuously in doses of 10 or 20 cubic centimetres twice a day. It will be seen that in some of the cases recorded in Table I. which ended successfully the amount of serum injected was very large indeed.

Moreover, as it is clear from all the more recent records

TABLE II.—MALIGNANT ENDOCARDITIS IN WHICH ANTI-STREPTOCOCCIC SERUM WAS USED AND IN WHICH AN ATTEMPT WAS MADE TO IDENTIFY THE ORGANISMS PRESENT.

Case.	Nature of disease.	Under care of—	Blood examination during life.	Commencement of treatment and amount of serum used.	Result.	Observations.	Reference.
1	Endocarditis.	Sainsbury.	Streptococci in the blood before treatment; absent afterwards.	10 cubic centimetres every other day from two months after onset; 70 cubic centimetres in 18 days.	Recovery.	Alteration in murmurs.	THE LANCET, Oct. 17th, 1896, p. 1079.
2	,,	Fox.	No bacteria found in the blood; but examination made after 12 injections of serum.	20 cubic centimetres daily from about the twenty-first day; 120 cubic centimetres in 10 days.	Died.	Streptococci in vegetations.	THE LANCET, Feb. 20th, 1897, p. 520.
3	,,	Pearse.	No bacteria in the blood, but examination made after 16 days of treatment.	Up to 20 cubic centimetres daily from about the fourteenth day; 100 cubic centimetres in 11 days.	Recovery.	Alteration in murmurs and pericarditis.	THE LANCET, July 10th, 1897, p. 92.
4	,,	Washbourn.	No bacteria found in the blood.	20 cubic centimetres daily from about the sixth week (?); 1030 cubic centimetres in 60 days.	,,	Development of basic diastolic murmur.	THE LANCET, Sept. 18th, 1897, p. 707.
5	,,	Michell Clarke.	No bacteria found in the blood.	30 cubic centimetres daily from about (?) the sixth week; 252 cubic centimetres in all.	,,	Illness of three months; variation of murmurs; temperature of 103° F.	THE LANCET, July 21st, 1900, p. 168.
6	,,	Abram.	Streptococci and staphylococci in the blood.	10 cubic centimetres daily of anti-streptococcic serum; 100 cubic centimetres in 10 days.	Died.	Streptococci had disappeared post mortem, but staphylococci were present.	THE LANCET, Feb. 25th, 1899, p. 515.
7	,,	Rogers.	Streptococci in pure culture in the blood on two occasions.	10 cubic centimetres daily from two months; only 90 cubic centimetres used.	,,	Staphylococci with streptococci present post mortem.	THE LANCET, June 10th, 1899, p. 1558.
8	,,	Lermitte and Fox.	Staphylococci but no streptococci in the blood.	10 cubic centimetre doses of anti-streptococcic serum; 149 cubic centimetres in seven days.	,,	Vegetations not examined for bacteria.	THE LANCET, Nov. 4th, 1899, p. 1225.
9	,,	Mackie.	Two colonies of "cocci" in the blood.	20 cubic centimetres daily from the twenty-first day; 180 cubic centimetres in nine days.	,,	Staphylococcus albus in the vegetations and spleen post mortem.	Brit. Med. Jour., vol. i., 1899, p. 142.
10	,,	,,	Staphylococcus aureus in the blood, sputum, and urine.	20 cubic centimetres of anti-streptococcic serum; one injection only given.	,,	Staphylococcus aureus in pure culture post mortem; acute case.	Ibid.
11	,,	,,	No examination of the blood.	20 cubic centimetres; only one injection used.	,,	Vegetations with short streptococci and some staphylococci post mortem; mixed infection.	Ibid.
12	,,	Ewart.	Blood examination negative.	80 cubic centimetres in seven days, from eighth day after embolism	,,	Development of aortic diastolic murmur. Rapid case. Vegetations not examined post mortem.	Brit. Med. Jour., vol. ii., 1900, p. 806.
13	,,	Laignel and Lavertine.	Short streptococci and a few staphylococci in the blood.	20 cubic centimetres daily from the fourteenth day.	Recovery.	Diffused systolic murmur.	La Presse Medicale, Paris, 1897, tome iii., p. 198.
14	,,	Cavafy.	Streptococci in pure culture in the blood.	10 cubic centimetres every other day from the seventeenth day (?); only 120 cubic centimetres in all in 20 days.	Died.	Streptococci almost pure in vegetations and blood post mortem.	St. George's Hospital Medical Register, 1898, No. 556.
15	Septicæmia and probably endocarditis.	Ewart.	Streptococci in the blood.	From about a month after the onset; 200 cubic centimetres in 21 days.	Recovery.	High temperature; sweating; thrombosis of the veins; swelling of the joints; systolic murmur which disappeared.	St. George's Hospital Medical Register, 1898, No. 1020.
16	Endocarditis.	Owen.	No examination of the blood.	28 cubic centimetres in all in the last week of life. Indefinite onset of illness.	Died.	Streptococci in the vegetations and the blood with many diplococci (? pneumonic) post mortem.	St. George's Hospital Medical Register, 1900, No. 1605.
17	,,	Rolleston.	No bacteria found in the blood.	From about six weeks after onset; 50 cubic centimetres in all in 11 days.	,,	Vegetations on the valves; pure streptococci in the spleen; cerebral and other embolisms post mortem.	St. George's Hospital Medical Register, 1900, No. 50.
18	,,	Curnow.	Streptococci in the blood.	150 cubic centimetres in all.	,,	Diplococci from the heart post mortem.	Lumleian Lectures, 1898 (Sir R. D. Powell).
19	,,	Cooper and Ogle.	Streptococci in pure culture in the blood.	Not before the sixth week; 110 cubic centimetres in 27 days.	,,	Aortic, diastolic, and changing mitral murmurs; hectic temperature and embolism.	Brit. Med. Jour., vol. i., 1902.

that these subcutaneous injections produce no serious symptoms, if it result that the examination of the blood be negative (as often happens) this fact should not, perhaps, be held to contra-indicate the employment of the serum in a case with symptoms of sepsis and implication of the heart, especially if there is a probability from collateral evidence, such as the history of any external suppuration or dental caries or ear disease, or of absence of gonorrhœa or pneumonia, that streptococci are really the organisms concerned. Of course, merely an ill-defined systolic murmur, with an irregular temperature, does not constitute such a case. At the same time, it is obvious in Table II. that staphylococci, either by themselves or together with streptococci, frequently cause the infection (see Cases 6, 7, 8, 9, 10, and 11).

It may perhaps be worth considering whether an anti-staphylococcic serum, if such be procurable, should not rather be used in an indeterminate case or be used in conjunction with anti-streptococcic serum. The only example of the use of anti-staphylococcic serum in these conditions which I have come across is that of Moritz[1] and the patient recovered; but the diagnosis of the organism present had not, I believe, been confirmed previously by a blood examination, although the evidence of implication of the valves seems to have been certain.

If any conclusions, therefore, can be drawn from these two tables they would, perhaps, be: (1) that the gravest symptoms, combined with streptococcic infection, even of the blood stream, are not incompatible with recovery if treated by injections of anti-streptococcic serum; (2) that this is true also in malignant endocarditis, but that here the chances are probably less favourable on account of the colony of micrococci involved in the vegetations in constant contact with the blood stream; (3) that in malignant endocarditis staphylococci are frequent, or a mixed infection of staphylococci and streptococci; and (4) that if an examination of the blood be negative it would be prudent, therefore, to use injections of anti-staphylococcic together with anti-streptococcic serum.

Gloucester-place, W.

HOW TO PREVENT THE SPREAD OF PELLAGRA IN EGYPT.[2]

BY F. M. SANDWITH, M.D. DURH., F.R.C.P. LOND.,
PROFESSOR OF MEDICINE, MEDICAL SCHOOL, CAIRO; SENIOR PHYSICIAN, KASR-EL-AINI HOSPITAL, CAIRO.

IT is now ten years since I first discovered the presence of pellagra as a frequent accompaniment of ankylostomiasis among the poorer peasants of Lower Egypt. Since then I have seen 1000 cases, most of which have passed through my wards at Kasr-el-Aini Hospital. Thanks to the courtesy of Dr. J. Warnock I have also had the opportunity of visiting most of his pellagrous patients in the lunatic asylum, who number about 40 every year. These figures are sufficient to show that the disease is prevalent among hospital patients, the poorest members of whom live on diseased maize, which they eat at home because it is too bad to command a price in the local market. By far the greatest number of hospital patients are men between the ages of 20 and 40 years, when they ought, of course, to be in the prime of life, working as agricultural labourers or serving their country in the police, the army, or in other ways. I have never yet found a single patient who was acquainted with the disease or who understood that an eruption of the skin was the outward sign of a chronic disease of the brain and spinal cord.

The ignorance of pellagra in Egypt is so great that I thought it would be interesting to examine some of the labourers actually at work in the fields to see if any of them showed signs of the disease. In June, 1902, I examined 315 men living in 11 different villages in the province of Gharbieh; 114 of them, or 36 per cent., showed signs of early pellagra. In one village where the inhabitants are especially well-to-do because they get regular pay throughout the year from the Domains Administration there were only 15 per cent. of pellagrous men, while among the men of the village which has the reputation of being the poorest the percentage rose as high as 62. Yet all these men stoutly denied that they had anything the matter with them and the overseers in charge of them stated that the pellagrous could all do a fair day's work. On the same day I examined 23 young girls who were working at the threshing floor or picking eggs off the cotton plants and again I found that 30 per cent. of them were already pellagrous. On a previous occasion I had examined 139 presumably healthy peasants in the province of Sharkieh and had found 50 per cent. of them to have pellagra. If these figures are in the least typical of the state of the male inhabitants in Lower Egypt it is quite time that something should be done to disseminate information on the subject and gradually to teach employers of labour and peasants that the early symptoms of the disease can easily be recognised, that they will then yield to treatment, but that, if neglected, the symptoms are of a progressive nature and will end in insanity or in general debility which entirely unfits the individual for work. I venture to recommend that the village authorities of Lower Egypt (mudirs, omdehs, sheikhs, &c.) should be informed by the usual methods of the Ministry of the Interior that good maize is an excellent food, but that the habitual use of bad maize produces a disease affecting not only the skin but also the digestive and nervous systems. There are many other points connected with improvement in hygiene, but it seems useless to insist on these so long as we have to deal with an agricultural population which is entirely unable to read.

The number of markets where maize is sold is so great in Lower Egypt that it is impossible at present to make any proposal for inspecting them, though I think that the local authorities might be informed that it is improper to allow obviously diseased maize to be exposed for sale. But it is not the worst maize which finds its way to the market, for the worst samples cannot command a price. It is the poorest peasants who are the chief offenders, for at the end of each year their custom is to take, in lieu of some of their wages, a piece of land which they cultivate for themselves with a crop of maize. The most careless of them sow diseased maize seed, gather the crop before it is ripe, store it in damp places before it is properly dried, and, worst of all, preserve the cobs within their sheaths in order that the sheaths may protect the grain from being eaten by the *Sitophilus granarius*. I have several times laid stress upon the fact that it is the inhabitants of Lower Egypt who require special protection in this matter. Their maize crop in 1902 is calculated by the Ministry of Finance at nearly 900,000 acres. The peasants in Upper Egypt are equally poor and equally ignorant, but they are saved from pellagra with certain exceptions, because their staple diet is not maize but millet. The maize crop of Upper Egypt is about 100,000 acres, of which nearly half is grown in the Fayoum.

There is one other question which should not be neglected and which could be easily regulated by the Government. I refer to the maize imported for consumption in Egypt from other countries, especially from those which we know to be affected by pellagra, such as Roumania and Turkey. All imported maize should be examined in Alexandria before it is allowed to be sold in the market there.

Cairo.

[1] Moritz: St. Petersburger Medicinische Wochenschrift, 1898.

[2] A paper read before the Medical Congress held at Cairo from Dec. 18th to 23rd, 1902.

THE ETIOLOGY OF SLEEPING SICKNESS.[1]

(PRELIMINARY NOTE.)

BY ALDO CASTELLANI, M.D. FLORENCE.

SEVERAL germs have been described as the cause of sleeping sickness. Cagigal and Lepierre in 1897 announced that they had isolated a bacillus from the blood of a patient suffering from sleeping sickness, which when injected into animals was able to reproduce the disease; but these experiments of the two Portuguese medical men were not confirmed later by Brault and Lapin. Next, Marchoux, basing his statements on the following observations, is of the opinion that sleeping sickness is due to Fränkel's diplococcus. At the post-mortem examination in a case of sleeping sickness where the patient was suffering also from

[1] A paper read before the Royal Society and published in THE LANCET by request.

pericarditis he found Fränkel's diplococcus in the exudation of the pericardium. It is worth noting that he found the germ in the pericardium only and not in the cerebro-spinal fluid or in any other situation. In a second case complicated by chronic rhinitis and suppuration in the sinus frontalis the secretion of the nose showed the same micro-organism. Besides these two observations, to which I do not think a great amount of importance can be attached, Marchoux was brought to this hypothesis by having noticed that sleeping sickness sometimes developed in people who had suffered from pneumonia.

Lately there have been the bacteriological researches of the Portuguese Commission and those of Dr. Broden. The Portuguese describe a germ (a diplo-streptococcus, to use their denomination) which they state they have found constantly in the cerebro-spinal fluid at the post-mortem examination of their cases. They state that they have also found the same organism in patients during life: constantly in the blood of cases examined for this purpose and very frequently in the cerebro-spinal fluid taken by lumbar puncture. The characteristic of their organism is that it does not usually grow on the ordinary culture media like agar, glycerine-agar, &c., and not at all on gelatin. The Portuguese do not mention having made any attempt to see if the blood of patients suffering from sleeping sickness has any agglutination power on their germ.

Dr. Broden, director of the bacteriological laboratory at Leopoldville, describes as the cause of the disease a bacillus which is slightly motile, producing a pellicle in bouillon and growing abundantly on potatoes. He was able to find the germ constantly in the blood of all his patients. The bacillus was not agglutinated by the blood of patients suffering from sleeping sickness.

In this short note I propose to give only a brief account of my experiments and researches. I must state first that I have never been able to find any of the germs described by my predecessors, but, on the other hand, I have found an organism which I think I have good reasons to consider to be the cause of sleeping sickness. I have grown it with absolute certainty (and always pure) in eight out of ten post-mortem examinations, from the cerebro-spinal fluid, and from blood of the heart taken with aseptic precautions. *In vitâ* I have found it only once in the blood, but I have grown it in two cases out of three from the cerebro-spinal fluid removed by lumbar puncture.

Description of the organism.—The germ may be considered as a distinct variety of the streptococcus group. The microscopic appearance is very variable, depending on the different media on which the germ has been cultivated and on the different times of growth, &c., all transitions from long chains to typical diplococci being seen. The form and size of individuals are also, within certain limits, variable. Frequently about the chain and the diplococcus forms well-defined mucoid capsules (*Schleimhüllen*) are seen, and in hanging-drop preparations the short chains and the diplococci forms show a well-marked Brownian movement.

Staining properties.—It is easily stained with the ordinary solutions of the different aniline dyes.

Cultivation.—Gelatin.—Growth occurs very well on gelatin at a temperature of about 22° C. and also below. In a stab culture the stab is generally thread-shaped, although sometimes it may appear a little granular; the surface growth is very slight. In streak cultures the colonies coalesce, forming a mass with a fine granular surface and sometimes wavy borders. In some few cases after five or six days I have noticed a very slight liquefaction of the gelatin.

Agar.—In a stab culture growth takes place luxuriantly along the stab, the surface growth being generally more delicate. In streak cultures in most cases the growth is very vigorous, the colonies not remaining separate but coalescing into a whitish mass with granular surface and wavy borders. In none of the cultures is the typical growth of the streptococcus pyogenes seen—viz., the collection along the stab of small circular semi-translucent discs, which show a great tendency to remain separate. Still, in rare cases—especially if the agar is old—the growth may be much more delicate and the colonies may remain separate. The water of condensation shows, as a rule, a slight whitish deposit.

Glycerine-agar.—The growth is the same as on agar, but rather more delicate.

Sugar-agar.—There is no gas formation.

Litmus-agar.—The colour of the medium does not change.

Potatoes.—There is very slight growth, sometimes none.

Bouillon.—The appearance of bouillon cultures varies greatly. In the majority of cases the bouillon remains clear and there is a flocculent and sometimes sandy sediment. In these cultures one generally finds long chains on microscopic examination. In some cases the bouillon is cloudy, with little or no sediment, and in cultures of such an appearance microscopical examination will often show the cocci arranged in pairs and in short chains. The same strain of germ sometimes will make the bouillon cloudy and sometimes not. I once inoculated a tube of bouillon from an agar culture and obtained a bouillon culture with no turbidity and with a well-marked flocculent sediment. Two weeks later I inoculated another tube of bouillon from the same agar culture, but this time the bouillon became cloudy and the sediment was very slight. In a strongly alkaline bouillon it is easy to obtain a diffuse cloudiness. The same observation has been made by Waldvogel with other varieties of streptococci.

Serum.—There is good growth, but more delicate than in agar.

Milk.—There is no coagulation. This is an important character of differentiation from the streptococcus pyogenes, as well as from Fränkel's diplococcus, both of which produce coagulation (Kruse, Pansini, Lehmann).

Relation to oxygen.—The micro-organism is a facultative anaerobe.

Agglutination.—Experiments have just been begun to determine if the germ is agglutinated by the blood of patients suffering from sleeping sickness. The experiments are still too few for one to come to any definite conclusion, but as far as they have gone the results have been very satisfactory.

Conclusions.—From the description just given I think that this germ must be considered a new variety of streptococcus. Every bacteriologist knows how difficult it is to differentiate sharply the varieties of streptococci on account of the numerous transition forms that occur, even a sharp separation between the streptococcus pyogenes and the streptococcus lanceolatus[2] (Fränkel's diplococcus) seeming to many observers to be impossible. Still, I think that the streptococcus I have found may be regarded as a distinct variety. The cultivation on gelatin is sufficient to differentiate it from the streptococcus lanceolatus, as the latter does not grow at all, or only very badly, on that medium. Besides, the agar cultures of my streptococcus have not the dew-drop-like appearance of those of the streptococcus lanceolatus. It is differentiated from the streptococcus pyogenes by its much more vigorous growth on all media, and especially on agar, by the tendency of its colonies to coalesce, and by the non-coagulation of milk. As regards the diplo-streptococcus of the Portuguese I do not think any confusion can arise. The Portuguese state that the culture of their germ generally failed every time on the usual media like agar, gelatin-agar, &c., and with gelatin they never succeeded in obtaining cultures.

The streptococcus that I have described grows very well on gelatin and on all the other usual media. This character differentiates the organism also from the streptococcus intracellularis (diplococcus intracellularis of Weichselbaum) which does not grow at all, or very badly, on gelatin, and also, according to some observers (Lehmann), on cow serum.

My experiments are not complete and they are not yet numerous enough; still, having grown my germ (always pure) in eight out of ten post-mortem examinations and having grown it from the cerebro-spinal fluid taken *in vitâ* by lumbar puncture in two out of three patients, and having also had, as far as I have gone, very satisfactory results as regards agglutination, I think that I am not wrong in stating that according to all probability the cause of sleeping sickness is to be looked for in this germ. I think that this organism is a distinct variety of streptococcus, to be classed between the streptococcus pyogenes and the streptococcus lanceolatus (Fränkel's diplococcus), and it might be called the streptococcus of sleeping sickness.

ADDITIONS AND MODIFICATIONS TO MY PRELIMINARY NOTE.

1. Counting the last post-mortem examination I have grown the micro-organism in nine out of 11 post-mortem examinations.

2. *Microscopical appearances.*—To be added, the following: In old cultures involution forms are produced; frequently

[2] I follow the classification and nomenclature of Lehmann (Lehrbuch der Speziellen Bacteriologischen Diagnostik).

single members present much larger dimensions and sometimes (as Stoltz has already observed in streptococcus lanceolatus, *Centralblatt für Bakteriologie*, Band xxiv., S. 337) they present the form of a club.

3. *Gelatin.*—The description given is not to be changed.

4. *Agar.*—As regards the agar stab, I do not modify anything.

Agar streak.—Instead of the description I gave I would put simply the following: The growth is generally much more vigorous than the typical streptococcus pyogenes and the streptococcus lanceolatus, the colonies showing a marked tendency to coalesce. Still in some cases the growth may be much more delicate than usual and the colonies may remain separate.

5. *Bouillon.*—I have nothing to change, but I would add the following: The bouillon tubes presenting a general cloudiness at a microscopical examination show chains and diplococci forms, sometimes diplococci forms only.

6. At the end of the paper, where I make the differential diagnosis between my streptococcus and the other varieties of streptococci, I have written in my note that the streptococcus which I have described is differentiated from the streptococcus lanceolatus because it grows well on gelatin; *besides, in the agar cultures of my germ I have never seen the dew-drop-like appearance of the agar culture of the streptococcus lanceolatus.* I should perhaps like to omit from my note the last sentence, which I have italicised, or at least to modify it, because some recent experiments have shown me that the agar cultures of my germ may show in *rare cases and special circumstances* (very old agar, &c.) a certain likeness to the agar culture of the streptococcus lanceolatus. Besides, I think, the fact that my germ grows well on gelatin is quite sufficient to distinguish it from the streptococcus lanceolatus.

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Entebbe.

ON PROLAPSUS UTERI; WITH SPECIAL REFERENCE TO AN OPERATION FOR REPRODUCTION OF THE SACRO-UTERINE LIGAMENTS.[1]

BY E. STANMORE BISHOP, F.R.C.S. ENG.,
HONORARY SURGEON TO THE ANCOATS HOSPITAL, MANCHESTER.

[AFTER quoting part of a paper by Mr. F. Bowreman Jessett which appeared in the May number of the Journal of the British Gynæcological Society in 1901 on the same subject and thus pointing out that to that author belonged the credit of previously devising and publishing an operation upon the sacro-uterine ligaments, Mr. Stanmore Bishop said:—]

But while this is the case the procedure which I advocate and which I desire to bring forward now differs from the one which Mr. Jessett describes not only in some points of technique, but essentially in its aim and in the result produced. Mr. Jessett seeks to produce, and succeeds in producing, a return of the uterus to its normal level in the pelvis and fixes it there—fixes the cervix to the sacrum behind and the fundus to the abdominal wall in front. So long as the adhesions which he makes between the structures hold good the uterus is rigidly retained in position and I conceive is unlikely ever again to prolapse, but the aim and result of his operation are firm fixation with little or no movement afterwards of the organ so fixed. The aim of the operation which I am about to describe is quite different. It is to obtain, as nearly as possible, a *return to the normal condition.* I should like to emphasise this phrase "a return to the normal condition" because I believe that we have a right to expect such a return at the present time in these cases. It is to be noted that we have to deal in this deformity, not with the ravages of disease, leaving behind them alterations in structure which render such a return impossible, or with actual losses of tissue which cannot be replaced, but with the results of injury, or traumatism, which are not necessarily followed by either of these—which leave the parts affected in new relations to one another, it is true, but beyond this in most cases but little altered intrinsically and therefore simply necessitating the repair of the results of such injury in order to restore the patient to the *status quo ante;* and this I believe in the majority of instances to be perfectly practicable.

Therefore we need first of all a definition of the *normal* uterus and I offer this as practically useful for the purposes of this paper. The normal uterus is one which is free to move in every direction within certain limits, but not beyond, and which is capable of development in all its parts during a succeeding pregnancy. In order to make what follows clearer permit me very briefly to draw attention to some points in the anatomy of this region. The general anatomy is, of course, perfectly well understood, but there are certain things upon which fresh light has lately been thrown and these are, I think, worth consideration. The uterus is a muscular body with muscular offshoots, ending in tendons, the latter blending with the periosteum of the pelvis, at four points of which the two anterior are nearly opposite to the two posterior. These muscular offshoots are much longer in proportion to their width and so permit of the free movement of the uterus within certain well-defined limits. They are the true ligaments of the uterus, and by their periosteal attachments they support the uterus at a normal level and prevent prolapse. These true ligaments are the round or fundo-pubic ligaments in front and the sacro-uterine, sacro-genital, recto-uterine, or retro-sacral—for by all these names they are described by various authors—ligaments behind. Attached to, and swinging from, the periosteal insertion of these true ligaments to the bony pelvis, the uterus is free to move within certain limits but not beyond. It is also perfectly free to develop in all its extent during pregnancy. If we wish to restore the uterus to a normal condition we must therefore so act as once more to leave it *free to move within normal limits, but not beyond, and to develop in its whole extent during any succeeding pregnancy.*

I need say nothing of the round ligaments. Their anatomy, position, and use are all perfectly well understood, but it may surprise some that I should describe the sacro-uterine ligaments as musculo-tendinous offshoots of the uterus. In old works on Anatomy, and in most of later date, these ligaments are figured and described as mere folds of peritoneum. In "Gray's Anatomy," last edition, 1901, they are still so described. In the eighth edition of "Quain's Anatomy" there is exactly the same description, but this is altered to some extent in the last, the tenth edition, edited by Schäfer and Thane. In this, after describing the fold of peritoneum, it is said: "This fold contains a variable amount of fibrous tissue and some non-striped muscular fibres forming the utero-sacral ligament."

Schultze, in 1888, in his work on "Uterine Displacements," p. 2, says: "These folds of peritoneum [referring to the folds of peritoneum surrounding the uterus] contain muscular bands arising from or inserted into the uterus and in the ligamenta rotunda and ligamenta Douglasii, at the anterior and posterior edges of the folds these bands are particularly well developed. ..... From the posterior surface of the uterus, a little below the junction of the cervix to the body of the organ, the muscular bands in the folds of Douglas pass to the lateral parts of the sacrum, nearly at the level of its second vertebra. The upper, so-called posterior, insertion of these muscular bands varies considerably, though it would seem that they always lose themselves in the muscular wall of the rectum and in the subserous connective tissue. The anterior or lower insertion is formed by some muscular fibres from each side coalescing behind the uterus and forming a single unique muscle, called by Luschka the musculus retractor uteri. In the gravid or puerperal uterus the normal hypertrophy of the muscular tissue of the uterus extends to that of the folds themselves." But undoubtedly the best account of them is to be found in a paper contributed to the January number in 1902 of the *Journal of Anatomy and Physiology* by Professor Dixon and Professor A. Birmingham. They say: "The sacro-genital ligaments ..... are two bands of mixed fibrous and muscular tissue which pass from the region

[1] A paper read before the British Gynæcological Society on Dec. 11th, 902.

..... of the isthmus uteri in the female, outwards and backwards on each side to blend with the tissue on front of the lower end of the sacrum and the back of the rectum. The two genital folds, two well-marked peritoneal ridges *covering* these ligaments, become continuous with one another on the back of the isthmus uteri, forming the torus uterinus in the female." These bands are therefore true ligaments, and although small and covered by peritoneum in such a way that their actual character at first sight may escape, and has escaped, recognition, are far more important as to resisting and supporting power than mere peritoneum could by any possibility be. Before the cervix, and with it the uterus, can descend, still more before they can be everted, as we see them in procidentia, these musculo-fibrous bands, the utero-sacral ligaments, must be weakened, relaxed, or torn through.

Besides these true ligaments of the uterus, upon the integrity of which, I contend, the maintenance of its normal position depends, there is another and broader attachment of the uterus—that, namely, to the bladder, which at first sight would seem to have much to do with its retention at a proper level. But firm as this connexion is, its value is greatly discounted by the mobility of the bladder itself, an organ by no means firmly attached to its surroundings, and the posterior wall of it, to which the uterus is connected, being a structure which is continually varying in its position as the viscus of which it is a part is filled or emptied. Everyone's experience of prolapse, and still more of procidentia, is that in such cases the bladder loses its own position and is dragged downwards by the descending uterus. Indeed, the converse theorem might be far more safely held, that the bladder depends greatly for the maintenance of its normal position upon its attachment to the uterus and through it upon these ligaments than *vice versâ*. Such a theorem would obtain additional support from the fact that Professor Dixon and Professor Birmingham describe these sacro-genital ligaments as existing also in the male. In male subjects they are attached anteriorly to the base of the bladder and assist materially in its retention in its normal position.

The broad ligaments are usually considered to be amongst the more important structures which maintain the uterus at its normal level, but, I confess, I think without good reason. These ligaments—so-called, since they contain no real ligamentous tissue—are composed entirely of two folds of peritoneum, inclosing between them some loose connective tissue, arteries, veins, lymphatics, and a portion of the ureter. They have no true resistant power against descent of the organ which they inclose. Like all other portions of peritoneum they are capable of great extension by slow but persistent forces acting upon them; this is evident in all cases of procidentia. The uterus may be outside the pelvis, outside the vulva, it is still embraced by the broad ligaments, which are not torn through but simply stretched, and such stretching has evidently not met with any determined resistance from them. They are supple, smooth, in no way altered in structure, but have simply yielded passively to the forces brought to bear upon them. We see exactly the same thing in the formation of the voluminous sac of a large scrotal hernia. This capability of easy yielding to persistent force is indeed well exemplified in the changes which occur in these very folds themselves during pregnancy and still more in that portion of them which covers the uterus itself. The peritoneal covering of an unimpregnated uterus is small indeed compared with the large expanse which lies upon that uterus at full term, but which is precisely the same, and will return to almost its original size and shape when once parturition is over.

It is evident that we cannot rely at all upon merely peritoneal attachments to prevent or to restrain prolapse, so that the value of the broad ligaments for this purpose is a negligible quantity. There are certain other things, the importance of which has been very generally emphasised by authors, as being more or less subsidiary factors in this question. Such are (1) the angle at which the uterus lies with reference to the vagina; (2) the potentiality of the vaginal canal, as opposed to the idea of an actual space beneath the uterus; (3) the action of the levator ani, pelvic fascia, and transversi perinei muscles in maintaining such potentiality and in converting an actual canal into a valvular slit in the tissues; and (4) a postulated balance between intra-abdominal pressure and the external atmospheric pressure. Such a case as the following, however, counterparts of which must be in the memory of all operators, demonstrates that all these subsidiary factors may be absent or non-effective, and yet so long as the true ligaments of the uterus are intact that organ will not descend.

A married woman, aged 51 years, attended at the Ancoats Hospital in July, 1902, with the complaint that her uterus was coming down. She had had two children, the eldest of whom was 27 years old. The labour had been a severe one, necessitating the use of forceps, and she attributed all her troubles to this confinement. The uterus commenced to come down, she said, as soon as she began to go about. On examination the perineum was found to be entirely absent; the sphincter ani was split and the vagina and rectum had a common opening which was divided about half an inch above the skin level by a narrow band, the combined edge of the rectal and vaginal mucous membranes. There were marked rectocele and cystocele, but the finger passed up the vagina found the uterus in its normal anteverted position and at its normal elevation in the pelvis. Thus, although all subsidiary factors had been non-effective for 27 years and the patient had been engaged in a laborious occupation, necessitating much standing, the uterus itself had not prolapsed, its intrinsic ligaments being intact. Incidentally, and inasmuch as all these patients describe their condition in the same way, as a "falling of the womb," this case emphasises the necessity of careful differentiation for operative purposes between true uterine descent and mere prolapse of the vaginal walls, for the latter of which conditions the operation for reproduction of the sacro-uterine ligaments is not required or suitable.

Returning to the true ligaments of the uterus, I think that a few moments' consideration will show that of the two sets—the fundo-pubic and the sacro-uterine—the integrity of the latter is of by far the greater importance. Their relative shortness, the position of their implantation below the main bulk of the uterus, their coordinate action with the vesical attachment in front, all render them more effective in maintaining the uterus in its normal position than the comparatively longer round ligaments which act upon the fundus. And, indeed, instinctively as it were, in all measures short of operative interference practitioners have always acted upon these facts. Where the perineum and its contained muscular fibres are intact, and often when they are not, pessaries have been used designed apparently with the one idea of replacing or shoring up these sacro-uterine ligaments. I do not refer to rings or inflatable ball pessaries, which, indeed, are mere mechanical plugs, but to those pessaries which act upon a scientific basis—Hodge's, Thomas's, and their modifications. These all act in this way, although their action has been otherwise explained and justified. They support weakened and relaxed sacro-uterine ligaments and if these are not torn through the support and rest so obtained may, and indeed often do, permit of the latter regaining their normal length and tone and so the patient may be cured by the use of these appliances. When these ligaments are torn the upper bar of the instrument to some extent replaces them. In the first instance, after a certain time the pessary may be disused, in the second it will always require to be worn, and this I conceive to be the reason why some patients will apparently be cured by pessaries worn for a sufficient length of time whilst others can never dispense with their presence. Of course the integrity or otherwise of the other ligaments and of the perineum is a large factor in any given case, but not, I contend, of the primary importance which belongs to the sacro-uterine ligaments.

But if this is true of cases treated by measures short of operation, how is it, then, that when operative interference is undertaken, the importance of these posterior ligaments is so entirely ignored? Schultze himself, to whose description I have already referred, makes no such suggestion in his *résumé* of operations for prolapse. The reason I believe is to be found mainly in the conditions under which operations have been evolved. When first surgeons attempted to remedy this defect it was not possible as it is now to avail ourselves of all the routes by which the uterus might be reached. The sacro-uterine ligaments are deeply seated and difficult of access. Moreover, in all the old text-books on anatomy, as we have seen, they are described as mere folds of peritoneum. Not only is mere peritoneum useless but to the pre-antiseptic surgeon the peritoneum was forbidden ground. It was the one structure in the body of all others to be avoided. Even in operating on hernia, where it is now recognised as so all important that the condition of the constricted gut should be known, the peritoneal sac in those days was opened only

as a last resource and operations were planned and instruments such as the old hernia knife and dissector were constructed for that one all-important purpose—to avoid opening the peritoneal cavity. Naturally in those days no attempt was made to interfere with the ligaments and all operators busied themselves with attacks upon the uterus through the one avenue open to them—the vagina—and upon the one structure with which they believed that they could safely deal—the vaginal mucous membrane. It was not then a question as to what was the ideal treatment; it was a question of what was possible under the then existing conditions.

When an attempt was first made to shorten elongated and lax ligaments, those the ends of which lay outside the peritoneum and could be dealt with without invading that cavity were naturally the first to be attacked and the operation for shortening the round ligaments was devised. In cases of retroversion or retro-flexion it has done extremely good work and will continue to do so; but it is curious to note that the importance of the genito-sacral ligaments was fully recognised by Alexander himself, who instituted this operation, although he and those who followed him made no effort to deal with them by operation. In his "Practical Gynæcology," p. 61, he says: "The Hodge, or the Hodge and stem, according to the nature of the case, are always introduced just before the operation is commenced. The Hodge should be fairly large so as to push the cervix well back and relax the posterior uterine ligaments. ..... The stem is removed at the end of the third week. ..... Where there is a weakened perineum, a tendency to cystocele or rectocele, or distinctly relaxed retro-sacral (*sic*) ligaments the perineum must be fortified at the same time that the round ligaments are shortened or a Hodge's or other pessary as an inferior support will require to be permanently worn."

Useful as this operation on the round ligament is in cases of retro-deviation, its inefficiency in cases of prolapse and procidentia is evident *a priori* from the very conditions of the problem involved, and is equally evidenced in practice by the numerous fixations which have been in vogue of late years. A pull from the uterine cornu towards a fixed point in the pelvis on the same or but very slightly higher level can never raise the whole body of the uterus to any great degree, still less if the posterior supports are gone can it raise and carry backwards the cervix. It will then simply draw the uterus forwards towards the pubes and so place it in a still more favourable position for further descent; and, recognising this, surgeons who had overcome by that time all dread of an open peritoneum seized the uterine body and drawing it bodily forwards and upwards, fixed it to the nearest point which offered resistance, the abdominal wall above the pubes. But such ventrofixation materially interferes with the proper development of the anterior uterine wall in any subsequent pregnancy and so it became a matter of great importance to show patients who in spite of this had carried a fœtus to full-time development. Several such cases are now on record, but whilst it has thus been shown that such a result is possible, cases are also on record in which abortion has occurred repeatedly, others in which the resulting parturition has been greatly impeded, and others in which death has resulted. It is human nature that successful cases should be emphasised and that those which have ended badly should be frequently unreported. The more honour to those authors who have faithfully recorded their failures, but none the less the departure from a normal condition induced by this operation and its results stands out clearly. No operator who has performed a ventrofixation, and still less the practitioner to whose unlucky lot it may fall to attend a patient through the succeeding period of irregular dilatation of the uterus during pregnancy and the equally risky parturition, can feel happy or secure until this severe test is well over, however triumphant they may appear afterwards. If nothing nearer to a return to the *status quo* is possible, the method with all its drawbacks may in some cases be justified—in women past the child-bearing period, for instance—but if better methods can be carried out, methods which attain more nearly to a restitution of the prolapsed organ to its original position and condition, then the supposed necessity of this plan loses its *raison d'être*.

I have myself performed a large number of ventrofixations and besides the objections already mentioned another has been strongly impressed on my mind. The portion of abdominal wall to which the uterus has been attached, although relatively a fixed point, is not so absolutely. Months after the fixation has been carried out the area of fixation will be found to have sunk inwards, having been drawn backwards and downwards by the weight of the attached organ, which will have sunk again to a much lower level than that at which it appeared at the time of operation to be located, so that the final result is, even so far as the mere elevation is concerned, not so satisfactory as at first would seem to be the case. The bladder in many of my cases also was compressed to some extent; its capacity was decreased, so that the patients were troubled by undue frequency of micturition and an inability to restrain themselves for any length of time when desire to urinate arose.

I do not mention vaginofixation except to condemn it. I have practised it in one case but should never again attempt it. The principle upon which it is based is, to my mind, false and its results, so far as I have seen them, are deplorable.

There is, moreover, one comprehensive objection to all these operations and a very forcible, if not a fatal, one. Consider for a moment the symptomatology of this condition. In the very earliest period of prolapse and increasing *per passu* with it pain and a sense of dragging weight are felt in the lumbo-sacral region. The uterus as it descends usually becomes more bulky and many of the discomforts experienced are attributed to its increased weight. This is doubtless true but for the full explanation I conceive that we must go still further back. The nerves of the uterus are derived from the inferior hypogastric and spermatic plexuses of the sympathetic system, both of which lie on the posterior concave wall of the pelvis behind the peritoneum and closely applied to the periosteal surface, as well as from the third and fourth sacral nerves of the spinal system. So long as the cervix maintains its normal position with regard to the posterior pelvic wall so long there will be no tension upon these nerve filaments, but immediately that position is altered by the rupture of the genito-sacral ligaments which keep the cervix in due apposition tension on these nerve fibres will commence and increase with every degree of departure from its normal proximity to the sacrum.

Again, the veins which return the blood from the uterus—the uterine veins—follow the course of the uterine arteries. Now, it is well known that traction upon the uterus in a downward direction will so kink and narrow these arteries that section of the uterus may be made through its entire extent without loss of any appreciable amount of blood so long as that traction is kept up, though the cut surfaces will bleed freely if the uterus is allowed to resume its normal position. The less resistant and much thinner vein wall will be still more easily affected by descent produced by any cause. As the blood current in them is delayed hyperæmia of the organ must necessarily ensue and the uterus become heavier still. Such increased weight leads to increased obstruction and a vicious circle is formed, escape from which is only possible by the restoration of the organ to its normal plane and its retention there.

From this point of view a survey of the various operations practised brings out still more plainly their inefficiency. Amputation of the cervix, which I have omitted, although it may decrease the actual weight at the moment, can never reapproximate the lower part of the uterus to the sacrum and so relieve tension in the nerve fibres supplying that organ. And the same objection applies to any operation upon the mucous membrane of the vagina or upon the perineum. I believe that the words which I have quoted from Mr. Bowreman Jessett in the introduction of my thesis are absolutely true and that slowly but surely the weight of the heavy uterus above acting as a wedge will open up again the passage beneath, which has been temporarily narrowed, however ingeniously it may have been done, and it is evident that even immediately after operation the normal relation of the cervix to the sacrum has not been reproduced. The same precisely may be said of Alexander's, Olshausen's, or any of the other operations which deal solely with the round ligaments. Ventrofixation will certainly relieve the venous hyperæmia by taking off the narrowing strain upon the blood-vessels of the uterus, but it cannot in any way replace the cervix in its normal relation with the sacrum and so restore the nerve filaments to their normal freedom from tension.

One last operation has been practised for the relief of this condition and surely we are justified in considering it the last effort of despair. This operation was described by Professor Edebohls at the Manchester meeting of the British Medical Association in July, 1902. When all else fails this operator removes the uterus, and with it the mucous membrane of the vagina down to the vulval edge. Then he

unites the bared connective tissue between the bladder and urethra on the one side and the rectum on the other by a series of purse-string sutures, beginning at the peritoneal opening, pushing this up and placing another immediately beneath. Proceeding in this way until he reaches the skin, this also is united and a continuous perineum is thus produced, as in the male, from the anus to the urethra. He adds, very properly, that the result must be carefully explained to the patient before submitting her to this transformation.

It is, I think, evident that none of the operations which I have described, and which comprise all those at present in use for the cure of procidentia or prolapsus uteri, can fairly be described as producing a return to the normal condition, but that they are, on the contrary, simply substitutions of one abnormal and deformed state for another. The change may be, and doubtless often is, an improvement on the original, but it is not, and cannot be, a reproduction of the *status quo ante*.

As I have endeavoured to show, the genito-sacral ligaments, though small, are all important in maintaining the normal position of the uterus; in cases of prolapse, and *a fortiori* in those of procidentia, they are relaxed, lengthened, and in many instances are torn through. In the slighter cases the support of a properly fitting pessary by allowing rest and time for them to recover tone will be all that is required, but in the severer instances, where they are absolutely torn through, no amount of rest will bring about their reunion. Torn muscular fibre retracts and atrophies from disuse; in the case of small muscles such as these a few months will suffice to render them practically indistinguishable from the connective tissue in which they lie. Can anything be done to replace them, once more to afford stability to the postero-inferior segment of the uterus in its normal position?

Here it is well again to emphasise the importance, if we are to restore the uterus to its normal position and condition, of its being free to move within certain limits. If absolute fixation of the antero-superior wall of the uterus is faulty, still more would absolute fixation of its postero-inferior segment be injudicious, since the normal descent of the cervix in parturition would be prevented and the escaping fœtal head would find itself opposed by the immoveable wall of the sacrum, the coccyx, and the firm fibrous structures spreading from them both. At the same time an attachment must be contrived which will be firm and permanent. For a fixed point the aponeurotic structures covering the anterior surface of the sacrum supply a perfectly satisfactory and sufficiently broad area for choice. In choosing the particular point the ureter and rectum must be carefully avoided. Both lie over these structures and beneath the peritoneum. Both are easily recognisable. So also are the nerve-strands which form elevated flattened ridges. It is wise also to choose a point fairly free from vessels. The main vessels—the common and internal iliac arteries and veins—are too far out for any uneasiness to be felt on their account. I have found that a point between the rectum on the inner side and the ureter on the outer is well adapted for the purpose. As to the height vertically on the surface of the sacrum, the manner of selecting this will be dealt with later. It will vary with almost every case.

In old cases of procidentia, as I have already pointed out, it is useless to search for the remnants of the original ligaments. They will have atrophied, and even if they could be found after a long and difficult dissection, the result of which would be needless damage to the tissues involved, they would be useless for reparative purposes. Whilst this is especially true in such cases it is also true in minor cases of prolapse. Bovée,[2] however, claims to have found and united the torn ends of these ligaments both from the vaginal and from the peritoneal aspect. Personally I believe that in every case this is mere waste of time and exposes the patient to needless risks. Like Mr. Bowreman Jessett I do not attempt a dissection which must be extremely difficult and is from the very conditions present foredoomed to failure, but seek to substitute something which will act in the same way, which is easily accessible, and which is sufficiently firm to be trustworthy.

Now in the upper extremity of the posterior fornix a sufficiently firm resistant material is available which, whilst firmly attached to the cervix, yet is of sufficient length between its most superior point and that blended with the latter to permit of normal freedom of movement. It is this which is utilised as the new sacro-uterine ligament. Its superior surface is covered with peritoneum. If this is denuded by the removal of a short narrow strip, its connective-tissue surface is bared for attachment to the parietal peritoneum behind. Greig Smith long ago showed that the most permanent adhesion possible was one between peritoneum and bared connective tissue, but in order still further to insure stability the suture which unites the two is passed deeply into the fibro-muscular layer of the vaginal fornix without, however, penetrating its mucous coat. This is done on both sides, one suture on each side, and the cervix is now slung to the anterior wall of the sacrum by the upper anterior wall of the posterior fornix. You will note that no attempt is made to attach the posterior fornix to the posterior wall of the uterus, as in Mr. Bowreman Jessett's operation.

The technique of the operation as I have carried it out is briefly this. The protrusion being reduced the patient is placed in the extreme Trendelenburg position and the abdominal wall is opened by a median incision. As soon as the intestines have sunk away from the pelvis towards the diaphragm two threads are passed through the broad ligaments, one on either side of the uterus inclosing tube and round ligament; the ends of these threads are tied and by them as tractors the fundus of the uterus is drawn forwards. A special sound is passed up the vagina by an assistant and made to press upwards the posterior fornix so as to render it prominent. On either side a stout silk thread is passed vertically through the substance of the fornix, avoiding the mucous lining, so that each protruding end is half an inch distant from the other and the whole loop is from one-half to three-quarters of an inch from the cervix. The fornix is now applied to the sacrum and a spot is chosen directly opposite, free from vessels and subjacent nerves and ureter and well outside the rectum, where the needle carrying this suture is entered deeply so as to embrace the periosteum covering the bone; it is brought out again half an inch directly above its point of entrance. Before tying this suture a narrow strip of peritoneum is removed from that portion of the fornix which lies in its grip, so as to bare the connective tissue beneath. This is repeated on the opposite side; the sutures are tied and their ends are cut short. Sometimes the position of the rectum will only permit of single fixation. This should then be more central in its position as regards the uterus and somewhat broader. The new ligament or ligaments are now formed and the cervix hangs in its normal position from the sacrum by that portion of the vagina which lies between it and the sutures. The traction threads through the broad ligaments are now removed. As in all cases of procidentia the round ligaments have been also greatly lengthened, they are now shortened by Olshausen's method. But it is important not to shorten them to their fullest extent, so as to permit of some play still being left, so that the uterus may rise with the filling of the bladder beneath as in the normal condition. For this part of the work, Doyen's pubic retractor is very useful, giving as it does a clear view of these ligaments and of their points of exit from the pelvic cavity. I have found it to be rather in the way in the earlier stage, so that I only introduce it after the new sacro-uterine ligaments have been made. After shortening the round ligaments it is removed and the abdomen is closed. The position of the uterus and vagina is now as nearly as possible that which obtained before prolapse began, whilst the uterus itself is perfectly free to move within normal limits, perfectly free to develop in its entirety. This manœuvre does not, of course, exclude or attempt to take the place of perineorrhaphy if this should be necessary; but any repairs of this kind I prefer to carry out at a later time, about 14 days afterwards if all goes well. Of all the methods by which perineorrhaphy can be carried out Tait's appears to me to be the most rational, with certain modifications, but these are outside the scope of the present paper.

I have now performed this operation upon ten patients, but as their history and results are so far almost identical and this paper is already so long I shall only give details of two.

CASE 1.—The patient, a married woman, aged 30 years, had had two children, the eldest being six years old and the youngest four years old. Her first confinement lasted for three days and was terminated by forceps. She attributed her prolapse to a fall down three stairs with the child in her arms nine days afterwards. Since then she had felt it more

[2] American Journal of Obstetrics, July, 1902.

or less from time to time. Actual procidentia occurred first 12 months previous to examination. Defecation and urination were normal, but reposition of the uterus was required before the latter act could be performed. Her actual state on admission was as follows. The perineum was very short, about half an inch. The sphincter ani was complete. The uterus was outside the vulva and was somewhat enlarged and heavy. The sound passed three and a half inches. The os pointed to the anus. The general condition of the patient was good. The urine was normal. She had worn Thomas's, ring, and pot pessaries. The two first did not remain *in situ*. The last was extremely uncomfortable and ineffective, some prolapse still occurring; probably, however, this was merely vaginal. On August 21st, 1902, the operation as described above was performed. Some difficulty with the intestines was experienced, notwithstanding the extreme Trendelenburg position. They were therefore allowed to escape and were surrounded and covered by warm flat sponges whilst the utero-sacral ligatures were placed. The left suture could not be satisfactorily made to penetrate the periosteum owing to the trouble caused by the intestines and the frequently jerking character of the respiration, so that the parietal peritoneum only on this side was embraced by the suture. On the right side, however, the suture was properly placed. On searching for the round ligaments, these were found to be so attenuated that only by drawing the fundus backwards and so putting their peritoneal covering on the stretch could they be recognised. After uniting their intra-pelvic extremities the intestines were replaced and the abdomen was closed. No rectocele or cystocele was evident on inspecting the vagina afterwards. Urine was passed naturally at 11 A.M. on the next morning. The bowels acted well on the third day. Some pain was complained of over the hypogastrium on the morning after the operation but this was relieved after a suppository of morphia and did not return. From first to last no pain was complained of in the sacral region. On Sept. 1st (ten days later) Tait's perineorrhaphy with interrupted buried sutures was performed, the wound being afterwards sealed by celloidin. The patient made a perfect recovery without incident and was discharged from the hospital on Sept. 19th.

CASE 2.—The patient was a married woman, aged 46 years. She had had two miscarriages; the first occurred eight months after marriage nine years previous to examination, the pregnancy being ten weeks in duration, and the second took place 16 months after marriage with a pregnancy of two months. She had had one living child six years since. The confinement lasted for 50 hours, with rupture of the membranes 24 hours before the appearance of labour pains, and it was terminated by forceps and chloroform. 19 months after confinement she first noticed the descent of the uterus which came down suddenly. In the following year, 1898, she was forced by pain to go to a women's hospital in Manchester, the uterus being then outside the vulva. The condition was treated by rest and pessaries of various kinds. Since that time she had consulted various medical men and had been treated by some operation in another hospital, five weeks after which she had a ring pessary placed in the vagina. This came away on the following morning. After this she wore a pot pessary with straps for 12 months. This gave her great discomfort and she said that the uterus came down by the side of it; she gave up using it in November, 1901. Then she wore a ring pessary for a while. Since April, 1902, there had been some bleeding which had dribbled from time to time but never very much. Her menstruation had always been regular as to time but the period now lasted for a week. Before marriage it lasted for three days. Her last period commenced 14 days since. Defecation was always regular until Christmas, 1901; since then she had had pain about the umbilicus before the act. Her condition at the time of examination was as follows. She was a healthy-looking woman, of medium height, and of sanguine complexion. The uterus lay between the thighs with the fundus looking towards the anus and the os looking upwards towards the pubes. The vaginal wall was entirely everted and dry, being covered by scaly epithelium. The os contained a small fleshy polypus, the pedicle of which sprang from just within the cervix. This was destroyed with the Paquelin cautery under cocaine. The fingers could be made to meet above the fundus, inclosing nothing but vaginal wall and peritoneum. There was no trace of the sacro-uterine ligaments to be detected by palpation. The perineum was short and after reduction of the uterus there remained marked rectocele and cystocele. On August 25th, 1902, the operation described above was performed. When the uterus was drawn up by the traction ligatures to its full height its fundus projected one and a half inches beyond the level of the abdominal wall, showing the great relaxation of the vaginal walls. The Fallopian tubes were normal and the ovaries were slightly cystic. After the operation upon both sets of ligaments the abdomen was closed by triple suture and sealed. After operation there were still marked rectocele and cystocele. On the 26th urine was passed naturally. She vomited slightly after the anæsthetic. There was no pain over the sacrum or elsewhere. The abdomen was supple. The temperature was normal until 6 A.M. when it rose to 99·6° F., falling to normal by 10 A.M. the same day. The respirations ranged from 24 to 30 and the pulse from 80 to 84. On the 31st the period began. Sharp pain was present before for about an hour which was situated above the pubes. She lost more than for the last two or three years, during which time it had been scanty and unsatisfactory, coming on for a few days, ceasing, and returning again. She thought that this period was much more natural and felt better after it than she had done since the uterus came down. The period lasted for five days. On Sept. 8th the abdominal wound was healed. Tait's perineorrhaphy with interrupted buried sutures was performed. The deeper tissues had so far retracted that the needle had to be carried close to the ascending pubic rami before sufficiently resistant material could be found for satisfactory reunion. Even when finished the space immediately in front of the sphincter did not seem to be sufficiently firm. The surface was sealed by celloidin. On the 9th urine was passed naturally at 4 A.M. On the 17th the abdominal sutures were removed. On Oct. 6th she returned home well and perfectly sound. There was some little delay after the last operation owing to the presence of pus in the tip of the vaginal flap and it was feared that one of the buried sutures might be infected, but douches with creolin cleared this up and no suture was extruded. The temperature throughout the whole stay in hospital never rose beyond 99·4°. The patient was shown at Stockport on Nov. 20th, 1902, and the result was confirmed by examination by three members of the Stockport Medical Society, one of whom was the president, and another the previous medical attendant who had been present at her confinement which he described.

Although the number of cases is but small they are perhaps sufficient to show not only the practicability of the operation but the good results to be expected from it. Its claim to be considered a rational attempt to attack the problem of prolapsus uteri in a scientific manner will rest upon the due consideration by operators of the anatomical conditions present in these cases and their appreciation or otherwise of the various arguments I have endeavoured to set forth.

Manchester.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NEPHRECTOMY BY LATERAL EXTRA-PERITONEAL INCISION.

BY PETER PATERSON, M.B., C.M. GLASG., M.R.C.S. ENG., L.R.C.P. LOND.,

ASSISTANT SURGEON TO THE GLASGOW ROYAL INFIRMARY.

ON August 4th, 1898, a man, aged 58 years, came under my care with a history of which the following is a summary. Nine weeks previously he observed that his urine was blood-stained and also that there was some difficulty in voiding it. This condition lasted three days and then disappeared, only to return, however, the following week. This sequence, the passing of blood-stained urine for a few days followed by the passing of clear urine for an interval of a few days, continued till admission to hospital. During the last four weeks he had, in addition, pain in the hypogastric region, at the point of the penis, and down the left thigh as far as the knee. Two days before admission he had for the first time pain in the left lumbar region. When first seen all the above

symptoms were present. The urine, which was of average quantity, was dark red, with an acid reaction and a specific gravity of 1024. Microscopically a large number of red blood corpuscles with a few epithelial cells were evident. Tube casts could not be recognised. Physical examination revealed the presence of a distinct enlargement of the left kidney, which was tender on pressure. All the other viscera appeared healthy. On the 13th an incision was made on the left side extending from the tenth costal cartilage to a point an inch internal to the anterior superior iliac spine. All the structures down to, but excluding, the peritoneum were divided in this line. The serous membrane was then reflected from the abdominal walls till the whole of the anterior surface of the kidney and a considerable part of the renal vessels were exposed. The gland was then removed by separating it from the surrounding tissues and tying the vessels and ureter between double ligatures. A small incision was next made in the loin by cutting down on the point of a pair of dressing forceps introduced through the anterior opening. Through the lumbar wound the cavity was loosely packed with sterilised gauze, whilst the anterior incision was stitched in layers with catgut. Two days later the packing was removed and, as there was only a little serous stain in the dressings, just sufficient gauze was introduced to keep the posterior wound open. After other two days the packing was dispensed with entirely. The patient's progress after the operation was satisfactory for a month; the wounds healed and the quantity of urine and urea averaged 50 ounces and 400 grains respectively per day. A trace of albumin, however, was still present. The patient now began to show signs of mental confusion and this condition gradually became worse till by the end of September he was unable to answer any question intelligently. In the beginning of October dermatitis affecting the whole surface of the body appeared. This gradually improved under treatment so that by the end of the month the skin was practically well. Three weeks later the patient's mental condition had quite cleared up and he left the hospital with, however, the albuminuria still present, though not so marked. During the whole of this period the urine was normal in quantity and contained on an average 420 grains of urea in the 24 hours. Tube casts were never observed. The patient was seen every few weeks after leaving hospital and his urine was examined, but it was not till eight months after the nephrectomy that the albumin had quite disappeared.

He was last seen four weeks ago—i.e., four and a half years after the operation—when he appeared to be well in every respect. The anterior incision was represented by a linear cicatrix which showed no tendency to stretch. There was no apparent weakness of the abdominal walls notwithstanding the fact that he was regularly employed at his work as an engine-fitter. Sensation between the middle line and the cicatrix was only very slightly blunted.

The kidney on removal was found to be enlarged in its lowest third to double the normal size whilst the remainder was regular in size and shape. On cutting the organ open it was evident that the enlargement was due to a tumour into which blood had been extravasated. Microscopic examination demonstrated that the neoplasm was a carcinoma undergoing colloid degeneration.

The advantages of removal of the kidney by this method far outweigh its disadvantages. The organ is easily accessible; there is no stretching of, or tension on, the vessels; large tumours can be removed through the wound; whilst the ureter, if necessary, can be exposed almost down to the bladder. The intestines do not come into the field of operation, the blood-supply of the colon is not interfered with, and the shock consequent on opening the abdominal cavity is obviated, whilst the wound is not any deeper than in the transperitoneal method. In the case of stone the viscus can be thoroughly examined between the fingers. In septic conditions the peritoneal cavity is not infected. Adhesions, both anteriorly and posteriorly, are easily reached, whilst in those cases where the peritoneum is so adherent to the kidney that it cannot be stripped off and the abdominal cavity has to be opened this part of the operation is much easier than by the lumbar incision and is not any more difficult than by the abdominal route. The disadvantages are: (1) that the opposite kidney cannot be examined through the wound and (2) that a risk of ventral hernia is incurred; but in the case of wounds taking an aseptic course the latter objection is more theoretical than real, as the above instance shows.

Glasgow.

EXCISION OF A PERFORATING GASTRIC ULCER.

BY ARTHUR EVANS, M.S. LOND., F.R.C.S. ENG.,
ASSISTANT SURGEON TO THE WESTMINSTER HOSPITAL; SURGEON IN CHARGE OF OUT-PATIENTS, SEAMEN'S HOSPITAL SOCIETY, ROYAL ALBERT DOCK.

A WOMAN, aged 36 years, was admitted into the Westminster Hospital late on the evening of April 25th, 1902, suffering from acute pain in the abdomen. She was brought to the hospital in a hansom cab, but walked into the surgery. Her condition on admission was as follows. She lay in bed with her knees slightly flexed; her face was not anxious, nor were her eyes sunken; her tongue was moist and clean; her pulse was 120 per minute, regular and easily compressible; and her temperature was 100·2° F. When I saw her, half an hour after admission, her temperature had risen to 100·8° and her abdomen was rigid, slightly retracted, and tender all over, the tenderness being most marked over the region of the stomach. The previous history was to the effect that she had been an in-patient in the Middlesex Hospital four and a half months previously with a four months' history of pain increased by food and relieved by vomiting. She was there found to have marked tenderness over the whole of the left abdomen, most marked at a spot two inches above, and to the left of, the umbilicus. Nothing else was found. In eight days her pain had disappeared and in three and a half weeks she was discharged from the hospital. The history of the present illness was as follows. For the last three days the patient had had a return of the old pains after food. On April 25th, at 3 P.M. she was suddenly seized with severe abdominal pain and vomited once; the vomit consisted of food only, there being no blood in it. The pain was exceedingly severe from the very beginning, causing her to keep her knees drawn up; it was felt all over the abdomen but was most marked in the left hypochondriac and epigastric regions.

The diagnosis of perforation of a gastric ulcer having been made the abdomen was opened by a four-inch incision in the mid-line between the umbilicus and the ensiform cartilage. On opening the peritoneum some fluid escaped which was whitish, opaque, and greasy. On passing the hand over the front of the stomach it was found to be adherent to the anterior abdominal wall. At this site the stomach wall was very much thickened, so much so that malignant disease was feared. Cutting through the adhesion, which was about a quarter of an inch thick, the thickened portion of the stomach was drawn out of the abdominal cavity and the peritoneal cavity was shut off by gauze pads. In the centre of this thickened area and by the side of the adhesion was a round hole of the size of the end of an ordinary black-lead pencil; through this, stomach contents were passing, amongst which pieces of cauliflower could be recognised. In order to determine the pathological nature of the mass in the stomach wall an incision was made through it into the stomach, the incision crossing the perforation, when it was seen that the mucous membrane was free from malignant disease and the stomach wall, although here an inch in thickness, appeared to owe its altered condition entirely to inflammatory processes. (Subsequent microscopic examination confirmed this.) To put an end to the constant leakage of stomach contents through the hole the interior of the stomach was lightly wiped out with sponges. The greatly thickened tissues surrounding the perforation did not permit of the invagination of that portion of the stomach wall, so that area, measuring about two and a half by one and a half inches, was excised. The mucous membrane of the rest of the stomach was normal, and there was no obstruction to the finger passing into the pylorus. The mucous membrane was sewn up with a continuous silk suture and the other coats were brought together with one row of Lembert's sutures, the stitches passing well beyond the edges of the wound and an occasional one being afterwards inserted here and there along the line of suture as seemed advisable. An incision was made in the right inguinal region and through this and the upper wound the peritoneal cavity was mopped out with sponges and then thoroughly flushed with sterilised water. The whole of the cavity was again as far as possible sponged over and the wounds were sewn up, an iodoform gauze plug being placed in contact with the wound in the stomach and brought out at the lower end of the upper wound and a large-sized curved glass tube was passed

through the lower wound into the pelvis. Two days later the edges of the lower wound became red and swollen. The stitches were taken out and fomentations were applied and the inflammatory trouble soon disappeared. The patient was fed with nutrient enemata, beef-tea, and milk alternately for seven days, and then she was given in addition one drachm of meat juice by the mouth every two hours; two days later milk was given in gradually increasing quantities, until by the eleventh day she was taking three pints of milk in the 24 hours and one drachm of meat juice every two hours. On the fifteenth day she was taking fish. She left the hospital for the convalescent home five weeks from the date of admission.

I saw her four months later when she expressed herself as being quite well. There was no abdominal tenderness or pain after food and she could take any kind of food; she said that she was more comfortable than she had been for the last three years. I saw her several times subsequently as she complained of pain in the region of the inguinal scar, and here a ventral hernia was developing. Pressure with a pad was tried but gave no relief. As the hernia not only gave rise to much discomfort but was also a source of great anxiety and was rapidly increasing in size I recommended an operation for its radical cure. On Nov. 15th, 1902, the scar and hernial sac were excised and the various layers of the abdominal wall were sutured separately. The coils of small intestine which presented in the wound during the operation were smooth, shiny, quite free from adhesions, and bore no trace of the process through which they passed eight months before. On Feb. 6th, 1903, I found that there was no bulging in the site of the old ventral hernia.

Queen Anne-street, W.

A CASE OF EMPHYSEMA IN VIOLENT LABOUR.

By JOHN BRAITHWAITE, M.D. DURH.,
PHYSICIAN TO THE DEVONSHIRE HOSPITAL AND BUXTON BATH CHARITY.

THE patient, who was a primipara aged 24 years and of small stature, began to have labour pains about 3 P.M. on Feb. 14th, 1903. From the first the pains were frequent and violent. The membranes ruptured about 11 P.M. About midnight her mother noticed that her face and neck had begun to swell. I saw her about 4 A.M. on the 15th when pains with very violent expulsive efforts were occurring about every three minutes. The pulse-rate was 120. The fœtal head was in the first position and half an inch from the perineum. On placing my hand over the abdomen I found that the uterus was not always contracting when the patient was "bearing down." There was well-marked emphysema over the base of the nose, both sides of the face, the front and both sides of the neck up to the mastoid processes, and over the whole of the front of the chest as far as the nipples. She complained of her neck being painful on movement and said that the skin crackled like brown paper. There was also hæmorrhage into the inner half of both conjunctivæ. A little chloroform stopped the expulsive efforts and lengthened the intervals between the proper pains. Labour ended about 6.30 A.M. without any further trouble. Convalescence was uninterruoted. On the 16th the emphysema had disappeared from the base of the nose. On the 17th it had almost left the cheeks, but whilst straining at stool she could feel the sides of her neck being puffed out. On the 19th the face and upper half of the neck were quite clear and on the 23rd I could only find a few isolated patches on the chest. By the 28th the emphysema was all gone.

Buxton.

A CASE OF FLOATING KIDNEY IN AN INFANT.

By REES PHILLIPS, M.B. LOND.,
HOUSE SURGEON TO THE HOSPITAL FOR WOMEN, BRIGHTON.

FLOATING kidney and moveable kidney appear from the literature of the subject to be very rare in infancy. Morris states that a floating kidney with a mesonephron is "excessively rare." I have therefore thought that the following case might be worth recording in this connexion.

The patient was a male child, born on Feb. 4th, 1903, whom I was called to see a few days after birth on account of an attack of greenish vomiting attended by collapse. When seen by me the child had recovered from the attack and looked apparently healthy and well developed. Examination of the abdomen revealed a very lax and atonic condition of the walls and there appeared to be a small oval tumour causing a prominence of the abdominal wall just below the ribs on the left side. Palpation showed that this tumour was the left kidney "floating" forwards. It glided about readily within the abdomen and could be displaced forwards so as to come in contact with the abdominal wall just to the left of the umbilicus. The right kidney was also "moveable," but not "floating." Its movement was chiefly in a vertical direction and the anterior and posterior walls of the abdomen could be compressed together above its upper extremity and the kidney thus held down. Since then the patient has had about half a dozen similar attacks of green vomiting and the mother states that he has had three attacks of "convulsions" with foaming at the mouth. The child is very constipated. Whether the symptoms are dependent on the abnormal mobility of the kidneys or are merely coincident I cannot say. The symptoms do not appear to be influenced by the position of the child. As the floating kidney has existed from birth this must be a case in which a mesonephron exists.

Brighton.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

A Case of Multiple Myeloma with Bence-Jones Proteid in the Urine.

A MEETING of this society was held on March 10th, Mr. ALFRED WILLETT, the President, being in the chair.

Dr. F. PARKES WEBER read an account of a case of Multiple Myeloma with Bence-Jones Proteid in the Urine. He said that the patient, a rather fat man, aged 50 years, complained of rheumatoid symptoms commencing about the end of the year 1899. About February, 1900, he began to suffer from pains in the loins and stiffness in the small joints of his hands. Soon afterwards the upper part of his back began to bend so that he always had a stooping attitude. Previously to this illness the patient had been strong, but as a young man had had gonorrhœa and a chancre on the penis. One of his sisters suffered from diabetes mellitus. The urine of the patient was found to contain the Bence-Jones proteid. The daily amount of the urine was about 2000 cubic centimetres and it contained about seven per mille of the proteid as measured by Esbach's albuminimeter. By a more exact method (precipitation with alcohol, drying, and weighing) Dr. R. Hutchison found that about 15 grammes of the proteid were excreted daily. The reactions of the proteid were the typical ones described by Dr. Bence-Jones, Dr. Kühne, and Dr. T. R. Bradshaw. For some time the patient's condition remained fairly stationary and at first by the use of local hot baths, massage, &c., the power of bending his fingers was improved. Afterwards, however, the general weakness, cachexia, and anæmia greatly progressed and gummatous disease of the tongue and on one rib made its appearance. Examination of the patient's blood showed slight leucocytosis. In January, 1901, it was found to contain about 23 per cent. of the normal hæmoglobin. In the cubic millimetre there were 2,930,000 red cells and 11,000 white cells (25·6 per cent. lymphocytes, 3 per cent. large mononuclear, 70·3 per cent. polymorphonuclear, and 1 per cent eosinophile). No myelocytes or atypical cells were detected amongst the leucocytes. On Jan. 25th, 1902, the patient died after copious hæmorrhage from the intestines, which post-mortem examination showed to be due to chronic ulceration of the duodenum. The Bence-Jones albumosuria persisted to the last. At the necropsy the bone marrow of all the bones examined was found to be more or less affected by a diffuse sarcoma-like growth of rounded or polyhedral mononuclear cells, a form of "multiple myeloma" or "myelomatosis." A report on the microscopic characters of the new growth by Professor R. Muir was quoted. The presence in the tumour of cells containing granules and globules of various sizes constituted a striking histological feature in the present case. The new growth was confined to the bones and formed no localised tumours projecting from the bones, such as had been noted in some cases of multiple myeloma. In fact, neither by direct

extension nor by metastasis were any other parts of the body involved. Dr. Hutchison and Dr. J. J. R. Macleod made a careful chemical investigation of the bones, blood, and organs, but failed to find in any of these tissues or organs a body giving exactly the same reactions as those of the Bence-Jones proteid in the urine. From the vertebræ and ends of the femur, however, they obtained a proteid giving very similar reactions, differing somewhat in the temperature at which it coagulated and in not being re-dissolved on boiling. Moreover, no similar proteid could be obtained from normal red bone marrow. They argue that in the present case the bone marrow was probably the seat of production of the proteid excreted in the urine and that this proteid was not a non-assimilated digestive proteid as suggested by Magnus-Levy. Though the case was complicated with syphilitic gummata, chronic ulceration of the duodenum, and a generalised rheumatoid affection of the joints it was a typical one of multiple myeloma with Bence-Jones proteid in the urine, the "myelopathic albumosuria" of Dr. Bradshaw, also called in Italy "Kahler's disease." When the diagnosis was first made it was probably the second case of the kind recognised *during life* in England, the first one being that recorded by Dr. Bradshaw in 1898. In the latter part of the paper various questions regarding multiple myeloma with, and multiple myeloma without, "Bence-Jones albumosuria" were discussed and a summary was appended of all the hitherto recorded cases in which Bence-Jones proteid had been detected in the urine, including certain cases in which no bone disease was discovered and certain other cases in which the reactions of the proteid in the urine were not quite characteristic. Multiple myeloma was regarded as a convenient term to include various forms of myelogenic new growth. Two types at least were to be distinguished: (1) a growth like the present, in which the bone marrow only was involved; and (2) a growth in which nearly all the cells resembled small or large lymphocytes and in which lymphatic glands as well as bone marrow were affected. Taking all the data that could be obtained into consideration Dr. Weber stated the following conclusions: (1) that Bence-Jones albumosuria was always the result of disease of the bone marrow; (2) that it was due to an abnormal metabolic or degenerative process in the myelocytes or in the tumour cells derived from the myelocytes or their predecessors; (3) that the reason why it was generally associated with myelogenic tumour formation was that the tumour cells derived from bone-marrow cells, however much they might morphologically resemble true bone-marrow cells, were more prone to abnormality than real myelocytes; and (4) that non-myelogenic tumour cells were not affected in the same way and therefore metastatic tumours in the bone marrow did not give rise to Bence-Jones albumosuria like myelogenic tumours.

Dr. BRADSHAW (Liverpool) said that when five years ago he first brought a case of myelopathic albumosuria to the notice of the society not more than six cases had been described and that at the present time no less than 32 cases had been recorded. He considered that myelopathic albumosuria should be recognised as a definite disease, distinct on the one hand from osteomalacia and on the other from multiple tumours in the marrow unattended by changes in the urine. He referred to a case of the disease at present under the care of Dr. J. Barr, in which sudden paraplegia and cystitis followed a feeling that "something had given way" in the back. He next dealt with the question whether the proteid was an albumose or an albumin. He said that in its chemical behaviour it seemed to be intermediate between a native albumin and proto-albumose. The coagulum by heat was much more soluble than that obtained from native albumin and had been said not to be a true heat coagulum. The nitric acid reaction was identical with that of proto-albumose, and, on the other hand, it was not dialysable. The term "albumose" was applied by physiological chemists to bodies which differed considerably from one another in their chemical reaction. Thus one member of the group, hetero-albumose, was insoluble in distilled water, proto-albumoses were coagulated by nitric acid, and deutero-albumoses were not coagulated by nitric acid. The essential idea of an albumose was a proteid derived from albumin but with a smaller molecular weight and of less complexity than the latter. Now all the albumins commonly met with contained a hetero-albumose group or radicle and yielded hetero-albumose and other albumoses when digested, and it had been shown by Magnus-Levy that the Bence-Jones proteid did not contain the hetero-albumose and therefore was probably an albumose. He considered that it was probable that the new growth in the bones was the seat of the formation of the albumose. He pointed out that the disease more frequently affected males than females.

Dr. HUTCHISON said that it was of importance to determine where the proteid passed in the urine was produced. He had examined all the organs, but had failed to find a proteid similar to that passed in the urine. A proteid was found in the portion of the medulla replaced by the myeloid growth, but it was not exactly of the same nature as that which was found in the urine. The view that it arose from the cells of the growth was probably correct, though it was difficult to see how the destruction of these cells could account for the quantity of proteid passed in the urine.

Dr. MACLEOD said with regard to the exact chemical nature of Bence-Jones albumose that its chemical reactions would indicate that it belonged to the native proteid group rather than to the proteoses. The biuret reaction was of a distinct violet colour, not a rose pink, which was characteristic of the proteoses. From its other reactions no definite opinion could be deduced. To decide whether the albumose proteid was derived from the gastro-intestinal tract or not it would be necessary to restrict the proteids of the diet to a greater extent than had been done in Dr. Weber's case. By its chemical reactions its chemical nature could not be determined, but this in any future case might easily be done by injecting it into the blood of an animal and finding if a specific precipitin was developed.

Dr. W. LEE DICKINSON said that the occurrence of Bence-Jones albumosuria was characteristic of myeloma of the bones and did not occur in cases of osteomalacia, lymphadenoma of the marrow, or Hodgkin's disease. He referred to the excess of lime which was frequently found in the urine of diabetic patients and asked if any such excess had been found in this case.

Dr. HUTCHISON said that the lime had not been estimated, but there was a large excess of phosphates.

Dr. WEBER replied.

MEDICAL SOCIETY OF LONDON.

Conditions simulating Appendicitis with Cases of Appendicular Abscess in Unusual Positions.—A Case of Abdominal Hysterectomy for Retro-peritoneal Cervical Fibroid.

A MEETING of this society was held on March 9th, Mr. A PEARCE GOULD, the President, being in the chair.

Mr. FREDERIC S. EVE read a paper entitled "Some Conditions simulating Appendicitis with cases of Appendicular Abscess in Unusual Positions." Five cases of tuberculosis of the cæcum were related the symptoms of which closely simulated appendicitis. All gave a history of recurrent attacks of pain, sometimes commencing suddenly. One patient was supposed for years to have suffered from gastric ulcer, the pain being referred to the epigastrium. In nearly all the cases constipation existed but vomiting was not marked except in one instance. The chief point in which they differed from appendicitis was in the slight character of the local tenderness. A swelling of firm consistence due to a thickened, indurated, and contracted cæcum was observed in all. The appendix was only found once and was not tuberculous. In one case observed by Mr. Eve in 1901 there was evidence of chronic obstruction and a short-circuiting operation was performed with good result. The condition had been mistaken in one recorded case for carcinoma, from which, however, it was distinguishable clinically by the absence of leucocytosis. Allusion was made to the difficulties in diagnosis in some instances between appendicitis and affections of the gall-bladder, kidney, and intestine, such as carcinoma, colitis, and obstruction by a band in the right iliac fossa, cases being quoted in illustration. In appendicitis the localisation of the pain and the position of the abscess were subject to great variations owing to modifications in the length and position of the appendix itself and vagaries in the position of the cæcum and other abdominal organs. In one case the pain was referred to the right loin owing to the tip of the appendix being attached beneath the liver and in another the pain was always localised in the left flank. Cases of appendicular abscess beneath the liver and about the umbilicus (owing to non-descent of the cæcum or unusual length of the appendix) were related. Great

difficulty might be experienced in distinguishing appendicular abscess within the pelvis from inflammatory and suppurative affections originating in the genital organs. A case of pyosalpinx was quoted in which the pain and tenderness were referred to the right iliac fossa and a case of suppurative ovarian cyst was related which had for three years given rise to attacks which were believed by several good observers to be due to appendicitis. In conclusion, a case of appendicular abscess deep in the pelvis was referred to which was opened by an incision resembling that employed for external prostatectomy through the perineum between the urethra and rectum.—The PRESIDENT referred to cases which he had seen of tuberculous disease in the region of the cæcum and appendix which resembled appendicitis very closely. He had also met with three cases of ovarian tumour with a twisted pedicle which had given rise to the greatest difficulty in diagnosis; in two of these the tumour was found lying in the iliac fossa. A case of perforated duodenal ulcer in a girl, aged 20 years, had also given rise to symptoms of appendicitis. An abscess was opened in front and a fæcal fistula resulted. Subsequently an empyema formed which was drained, food passing through the opening. The patient ultimately recovered.—Mr. ALBAN H. G. DORAN had frequently seen ovarian tumours with twisted pedicles mistaken for appendicitis. He referred to a case of tuberculous vermiform appendix occurring in a patient, aged 24 years, which appeared to be part of a localised tuberculous ascites. He also referred to a complicated case of salpingitis which appeared to have spread from the opposite side and which was associated with appendicitis. He was satisfied that salpingitis might spread from one tube to the other.—Dr. F. DE HAVILLAND HALL related a case which was regarded as an incarcerated epiplocele but in which it was found that the appendix had passed down the femoral ring. Cases of hysterical patients often presented much difficulty in diagnosis.—Dr. H. A. CALEY thought that when there was much and long-continued pain lesions of the colon rather than of the appendix should be suspected and he referred to a case of a middle-aged man who had suffered from continuous pain for four years, the case having been regarded as appendicitis and the appendix having been removed without relief.

Dr. A. H. N. LEWERS communicated a case of Abdominal Hysterectomy for a Retro-peritoneal Cervical Fibroid weighing 13½ pounds. The patient was a single woman, aged 42 years, who had noticed a swelling of the abdomen for three or four years. The tumour was removed and the patient made a good recovery, leaving the London Hospital on July 22nd, 1902. Reference was made to previously recorded cases[1] and stress was laid on the fact that such retro-peritoneal cervical fibroids formed a class by themselves. The operation for their removal was a very extensive one. This was the sixth case which Dr. Lewers had operated upon.—Mr. ALBAN DORAN said that he could not regard merely the size of the tumour as a cause of shock. Dr. Lewers's case was a true cervical fibroid, but so-called retro-peritoneal cervical fibroids were often not of uterine origin, being connected with the broad ligament.

HARVEIAN SOCIETY OF LONDON.—A meeting of this society was held on March 5th, Dr. W. Winslow Hall, the President, being in the chair.—Mr. J. P. Lockhart Mummery read a paper on the Value of Arthrotomy in the Treatment of certain Joint Lesions. He pointed out that many cases of what might be called subacute septic joint lesions followed or occurred contemporaneously with infections such as influenza, scarlet fever, measles, or pneumonia. Other cases occurred after some septic lesion such as a whitlow, or in oral sepsis, and the organism of the lesion had been demonstrated in the fluid contained in the joint. Certain cases known as chronic rheumatism, or rheumatoid arthritis, might in reality be pyæmic in origin and comparable with gonorrhœal arthritis. Mr. Mummery then dealt with two types of septic arthritis following infection of the blood—the acute and the subacute, sometimes called "pyæmic arthritis," but not part of a general pyæmia. The primary focus from which the blood was infected was often insignificant. Acute septic arthritis was generally the result of direct infection from a wound and rarely proceeded from the blood except as part of a general pyæmia. In one patient, however, aged 21 years, who was out of health, a slight abrasion of the finger caused a pustule. Five days later he felt a sudden pain in the left ankle. Four days later he was admitted to a hospital, very ill, with a temperature of 102° F. and the left ankle much swollen and inflamed and evidently containing pus. The finger had nearly healed. Incisions were made into the ankle which was treated with a continuous water bath. The incisions had to be opened again a week later and ultimately septicæmia rendered it necessary to amputate. After this the patient recovered. There were no history of traumatism, no previous joint disease, and no general pyæmia. The infection seemed to come from the finger and earlier opening of the joint would probably have saved the limb. Subacute septic arthritis might follow sepsis after pregnancy or the acute fevers or gonorrhœa. Treated by rest and lotions these cases showed frequent formation of adhesions or recurring attacks of synovitis, whereas opening the joint and washing it out gave excellent results. The joint lesions were often mistaken for acute rheumatism, but the condition did not react to salicylates. In gonorrhœal arthritis there was a marked tendency to the formation of adhesions and recovery was very slow, but with opening and washing out the joints, especially if done early, the disease usually rapidly subsided. Mr. Mummery alluded also to the use of arthrotomy by Dr. John O'Conor of Buenos Ayres in cases of acute rheumatism. It was claimed that this treatment lessened the duration of the disease and the liability to cardiac lesions. Dr. O'Conor believed that the joints formed the infected foci from which the heart was affected. In England, where rheumatic fever seemed to react to the use of salicylates, it was difficult to believe that arthrotomy was needed. Mr. Mummery here described the practical details of arthrotomy at some length. He regarded the operation as simple and practically free from risk, the open method being infinitely superior to aspiration. Before closing the wound it was important that all bleeding should be stopped.—Mr. J. H. D. Phelps said that having worked for the last three years with Dr. O'Conor he was able to speak very favourably of arthrotomy and irrigation in septic and gonorrhœal arthritis. As regarded the treatment of acute rheumatism by arthrotomy, doubt had been thrown on the nature of Dr. O'Conor's cases, but those which Mr. Phelps saw presented all the clinical features of the disease. Bacteriological observation had unfortunately not been carried out.—Dr. Sidney P. Phillips said that septic joints were very rare as a sequel of the infectious diseases.—Dr. John F. H. Broadbent and Dr. S. Vere Pearson also took part in the discussion.

PLAISTOW AND CANNING TOWN MEDICAL SOCIETY.—A meeting of this society was held on Feb. 25th. The annual report was read and adopted. The office-bearers of the previous year were re-elected for another year.—Mr. Harvey showed some microscopic sections from (1) a case of Hæmorrhage into a Suprarenal Capsule; and (2) a case of Congenital Multiple Sarcomata of the Skin (the full details of this rare case were given by Mr. G. Pernet before the Pathological Society of London in April, 1902).—Mr. Percy Rose showed a naked-eye specimen of a Pancreas containing numerous Calculi.—Dr. T. D. Lister read a paper on the Principles of Infant Feeding. He pointed out that all the divergences of medical opinion began from what was the common starting-point of all practical workers—viz., that pure, good, cow's milk supplied the only generally applicable substitute for natural feeding. He condemned the encouragement of artificial feeding in the case of the healthy children of mothers able to feed them. After recapitulating the differences between cow's milk and human milk, he said that the elaboration of percentage feeding was justified chiefly on theoretical grounds and contended that the essential differences between cows' and human milk prevented the attainment of a humanised milk in the literal sense. After referring to the proportion of whey proteid and curd proteid in the respective milks, suggestions were made for the home preparation of modified milks, based on the methods of Professor Rotch and Dr. White and Dr. Ladd. He drew attention to the value of a certified milk system, as recently referred to by Dr. Coutts, and thought that more coöperation with the milk trade would afford a useful field for some of the activities of local medical societies. For the less intelligent and also the poorer classes, where a little milk had to go a long way, dilution with cereals, or even with water simply, was a valuable method and one often adopted for routine practice in hospital

[1] Transactions of the Medical Society of London, vol. xxiv., p. 106.

work. Commercial sterilisation was not to be depended upon, for it sometimes meant making a market for milk already undergoing decomposition. In regard to the feeding of children of the well-to-do and the use of predigested milk foods, he thought that it was wiser to use partially or completely predigested foods than to carry dilution to what was often almost starvation point, reducing the degree of predigestion as nutrition improved. Finally, Dr. Lister insisted that the striking feature of the literature of the subject was that each method had failed in other hands than those of its advocates, and that each had been successful when carried out by those who had developed its application. The inference was that the skilful application of a well-understood method by those knowing all its points was the thing to be desired and that the main object of nutrition being obtained the method was of secondary importance. He therefore urged the desirability of using whatever method was best adapted to the facilities and intelligence of their patients, and said that the first duty of the profession in striving to settle the problem of infant feeding was the elimination of doubtful milk by the education of public opinion.—A brief discussion of the paper followed and a vote of thanks to Dr. Lister brought the proceedings to a close.

GLASGOW SOUTHERN MEDICAL SOCIETY.—A meeting of this society was held recently, Dr. Duncan Macgilvray, the President, being in the chair.—Dr. W. F. Somerville gave a demonstration of the Curative Properties of High-frequency Currents in all conditions attributable to Retrogressive Changes in the Nervous System. A number of patients were present whose ailments had either been cured or greatly relieved by a course of this treatment. One patient who had suffered from peculiarly obstinate sciatica and was on the present occasion accompanied by his family medical attendant gave a graphic account of the speedy and complete relief which he had obtained under the high-frequency current. Among the cases shown were some in which chronic eczema due to varicose veins had quite healed under this treatment and one in which a large area that had been occupied by scrofuloderma had almost healed. An electric couch was also shown and a practical demonstration of high-frequency currents was given.

ÆSCULAPIAN SOCIETY.—A meeting of this society was held on March 6th, Dr. Thomas G. Stevens, the President, being in the chair.—Dr. J. S. Risien Russell read a paper on Early and Anomalous Signs of Tabes Dorsalis. He said that probably no clinical picture was better recognised than that of the ordinary well-developed ataxic patient. But there were others that were less distinct and for the diagnosis of these a systematic examination of the nervous system must be made. The knee-jerks might be present and ataxy absent and yet a diagnosis of tabes be made; for the Achilles jerk might be absent and patchy analgesia present on the trunk, inner side of the forearm, or the front of the legs, or the pupils be irregular, immobile or sluggish, or optic atrophy be present though the vision was not defective noticeably to the patient. Some cases commenced with bladder hesitancy, others with gastric crises, or herpes zoster might be the earliest sign. Auditory vertigo, tinnitus, and deafness might be early signs of tabes.

Reviews and Notices of Books.

The Diseases of Infancy and Childhood. By L. EMMETT HOLT, M.D., LL.D. Second edition, revised and enlarged. With 223 Illustrations. London: Henry Kimpton. 1903. Pp. 1161. Price 25*s.*

THE second edition of Dr. L. Emmett Holt's work on the diseases of infancy and childhood departs but little from the general scheme of arrangement which rendered the first edition such a valuable work of reference for those who take an interest in, or make a specialty of, the important branch of medicine included in the title. Conformably with the recent growth of knowledge in the department of the feeding of infants the chapters on this subject have been entirely rewritten and much new material has been added, while 21 additional illustrations contribute largely to the clearness and vividness of the clinical descriptions.

Many of the reforms in our methods of feeding infants can be traced so clearly to the knowledge disseminated through the medium of the first edition of this popular work that the interest of readers will naturally centre in those portions of the new edition which deal with this subject. Among the methods of artificial feeding Dr. Holt considers that the American or percentage system, as conducted in the Walker-Gordon milk laboratories, is the best, ranking next to breast-feeding in usefulness and trustworthiness. Of this method he remarks on p. 186: "My own results have steadily improved each year as I have come to understand more clearly the indications for using the different changes in the milk which the laboratory has made possible. I have therefore no hesitation in placing it when intelligently used next to maternal nursing." Considerable space is devoted by the author to the description of this method which has been, since the publication of the first edition, placed on an even more scientific and substantial basis. The chief improvement recorded in this method lies in the possibility of varying the relative proportions of the caseinogen and lactalbumin of cow's milk. This extension of the method has very important bearings inasmuch as it is the inability on the part of infants to digest the casein of cow's milk which sometimes renders the ordinary modifications of milk absolutely futile in treating difficult cases of indigestion. The laboratory method of feeding has not always proved a success in this country and the reason for a certain proportion of the failures is doubtless because many persons have hastened to adopt this new method without thoroughly understanding the principles which underlie its scientific application. On this point Dr. Holt remarks that "those whose knowledge of laboratory feeding consists only in the acquisition of a few formulas which are supposed to be appropriate for the early, middle, or late period of infancy are in little better position than one who feeds all children under his care on Dr. A.'s or Dr. B.'s mixture or upon any of the commercial infant foods. The results will probably be about the same. An equally improper way of using the laboratory is that of those physicians who know nothing of milk percentages and care less and who simply write, as I have known many to do, such directions as the following:—'Send milk suitable for three months old baby.' In this way all the advantages of laboratory feeding are missed, and its fundamental principle violated, which is for the physician to prescribe a food adapted to the child's digestion at the time." Although Dr. Holt places in the front rank this system of feeding which depends on the assistance of a milk laboratory he nevertheless maintains that with sufficient care and attention to certain details a degree of accuracy sufficient for all practical purposes can be secured by a method of home modification. This admission is especially important for practitioners in this country who are unable in the great majority of cases to avail themselves of the services of a properly equipped milk laboratory.

The treatment of the symptoms of infancy by the modification of food rather than by drugs is even more strongly insisted upon in this edition than was the case when Dr. Holt originally published his book some few years ago; in fact, as far as infancy itself is concerned the only logical inference which can be drawn from Dr. Holt's teaching is that in the vast majority of instances those conditions which are not amenable to this form of treatment or to hygienic measures are not amenable to any other. The diseases of infancy are mainly dependent upon disordered conditions of nutrition attributable doubtless in the majority of cases to faulty digestion and inefficient assimilation of food from the alimentary tract owing to the inappropriate character

of the food supplied. General failure of nutrition, however, may, and in no inconsiderable proportion of cases certainly does, depend on defective assimilation and dissimilation of the part of the tissues generally quite independently of functional disabilities of primary digestion. This distinction we cannot help thinking has not been made sufficiently plain in those chapters of the present volume which deal with the subjects of nutrition and malnutrition. If we examine, for instance, the chapter on Marasmus, or Athrepsia, as it is now generally called, it is to be observed that this condition of simple wasting is described as an extreme form of malnutrition occurring in infancy and independent, as far as is known, of constitutional or local organic disease; in fact, that it is a vice of nutrition only. This definition, though little calculated to meet with the approval of those who attribute this disease to atrophy of the gastric and intestinal glands, would be quite in harmony with post-mortem evidence, as well as with the more recent views of Bouchard and his school, if the term "vice of nutrition" were allowed to apply to the vital activities of all the tissues of the body equally with those of the intestinal tract proper, which, so far as we understand it, is not Dr. Holt's meaning.

Although in the preface the author informs his readers that his purpose has not been to "deal with surgical topics more than in their medical aspects," we notice that in the chapter on Adenoid Growths considerable space is devoted to their surgical treatment. In addition to our objection on general principles to physicians usurping surgeons' prerogatives we consider that in this instance the value of Dr. Holt's book is not enhanced by his account of this particular surgical operation—indeed, we imagine that most surgeons in this country would hardly admit that "the majority of the growths encountered in ordinary practice can be removed with one sweep of the curette." There is, indeed, a danger by such a method of procedure of the periosteum being stripped from the posterior wall of the pharynx if too much energy is displayed in the use of the curette. Such an accident has, within our own knowledge, occurred on more than one occasion and might with advantage have been included among the dangers of the operation enumerated by the author.

With regard to the subject matter generally of the present volume it must be admitted that, with very few exceptions, it has been brought remarkably well up to date. And in this connexion we notice that although the congenital condition of pyloric stenosis has been most adequately described, another congenital condition of probably equal importance—namely, achondroplasia—is entirely omitted both under this name and under its numerous synonyms. Owing to the similarities of this condition with that of fœtal or congenital rachitis, to the mistakes in diagnosis which are likely to occur when this somewhat rare disease is met with, and to the interest which attaches to the disease, it is to be regretted that this omission has been made.

As a work of reference on the diseases of children we regard this recent edition of Dr. Holt's book as even more complete and trustworthy than the last edition of Professor Baginsky's classical work on the same subject which was recently reviewed in THE LANCET.[1] Moreover, it is more readable, more practical, and more up-to-date. In fact, in our opinion, there is no work on the subject of the diseases of infancy which is comparable with the volume under review, and with the exception of Dr. Rotch's "Pediatrics," no book with which we are acquainted contains anything like such full, systematic, and accurate directions for the feeding of infants, either in health or in disease.

[1] THE LANCET, Nov. 15th, 1902, p. 1329.

A Text-book of Palæontology. By KARL VON ZITTEL. Translated and edited by CHARLES EASTMAN, Ph.D. Vol. II. With 373 figures in the text. London: Macmillan and Co. Pp. 283. Price 10s. net.

THIS the second volume of the translation of Professor Zittel's shorter work upon Palæontology deals with the lower vertebrates from fishes to birds, the mammalia being reserved for a third and final volume. It is not merely a translation of the German original but is to be looked upon as a partly new work since addition to, and some slight alterations in the arrangement of, the facts detailed by Professor Zittel have been made by various gentlemen in America and in this country at the request of the editor.

Palæontology is making such rapid strides at present that the antiquity of a text-book on the subject is apt to be measured more correctly by months than by years. It therefore behoves an editor of a responsible and authoritative work like the present to keep a very keen and constant eye upon current zoological literature. This appears to have been the attitude of Professor Eastman and his colleagues, with the result that the student of the general facts of palæontology, so far as they are embraced in this volume, can follow the instruction given with confidence. That instruction is, however, dealt out in a highly concentrated state; so much so perhaps as to be not easily assimilable by the novice. The author and his several editors have been at pains to fit in every corner with information and have thus produced a handbook which is just a little bit suggestive of a dictionary. The desire of making the reader acquainted simply with names in default of other facts has been pressed a little too far. Thus, of the Stegocephalan genus Macromerion all that is said is "Imperfectly known." In such cases the elementary student might perhaps have been better left in temporary darkness and the space thus saved might have been devoted to a less pemmican-like description of forms not "imperfectly known." For an avowedly elementary text-book the section devoted to Fishes appears to us to be in comparison inordinately long, and here the practice of the simple mention of names and localities is carried to an excess not approached elsewhere in the manual. On the other hand, the minute differences which distinguish allied genera or even families of bony fishes are set forth at times with a prolixity which is surely out of place in a book which does not pretend to exhaustive treatment.

From minor faults Professor Zittel's handbook is singularly free, but we have noticed one or two. For instance, in treating of the Ganoid fishes the family Aspidorhynchidæ is printed in "clarendon" type and is followed by "Woodward" in "small pica" type. On the very next and, indeed, opposite page another family of the same group of fishes—viz., Lepidosteidæ—is distinguished by the same clarendon type; but the name of that family is in this case followed by "Bony-pikes" in small pica—a state of affairs which leaves us in doubt as to whether "Woodward" is the popular name of a group of fishes or whether "Bony-pikes" is the name of some eminent palæontologist. Again, the name of a family of ancient and primitive lizard-like beasts is given as "Proterosauridæ." We well remember that excellent and eminent surgeon and palæontologist, the late Mr. J. W. Hulke, correcting a friend in thus pronouncing a name which should be written and pronounced "Protorosaurus." The name, in fact, is not compounded out of an impossible and non-existent comparative of the Greek word for "first," but is derived from two words meaning, of course, "first hour"—the lizard of the prime, in fact. But after all these are trifling blemishes and do not detract from the usefulness of the volume which will be a lasting testimony to the peculiar

ability of Professor Zittel in writing text-books on palæontology and to the discrimination and energy of Professor Eastman and his editorial colleagues.

LIBRARY TABLE.

Obstinate Hiccough. By L. F. B. KNUTHSEN, M.D. Edin. London: J. and A. Churchill. 1902. Pp. 169. Price 6*s.*—This publication is a graduation thesis and, like many other theses of the same nature, is the result of a certain amount of laborious work in the collocation of facts but is quite lacking in anything suggestive of originality or research. The author gives a long and very detailed account of a case of severe hiccough which came under his own care and which proved fatal, and he then proceeds to cite all the cases of hiccough which have been reported in English and foreign journals and which he has compiled doubtless with much labour, the cases amounting altogether to over 150. These form a sufficiently interesting record and show the great multiplicity and variety of drugs and methods of treatment that have been adopted at different times, none of which have proved specific and trustworthy for all conditions of hiccough, even when the trouble was due apparently to the same cause. The author then deals briefly with the anatomy, physiology, pathology, and treatment of hiccough. He gives it as his opinion, without any very serious arguments to support it, that the pneumogastric is the nerve most directly concerned in hiccough. Dr. Knuthsen has nothing more original to suggest under "treatment" than the somewhat threadworn platitude that the condition underlying the symptom of hiccough should be first sought and treated, and only when a *prima causa* fails to disclose itself should the hiccough be treated as a disease *per se*. The treatise ends with a catalogue of all the drugs and methods of treatment that have been used to combat hiccough, with references to the cases in which they have been employed.

Lehrbuch der Anorganischen Chemie. Von Dr. H. ERDMANN. Dritte Auflage, mit 291 Abbildungen, 99 Tabellen, einer Rechentafel, und sechs farbigen Tafeln. Braunschweig: Druck und Verlag von Friedrich Vieweg und Sohn. 1902. Pp. 788. Price 15 marks. (*Manual of Inorganic Chemistry.* By Dr. H. ERDMANN. With 291 illustrations, 99 tables, a reckoning table, and six coloured plates.)—This is the third edition of a well-known German manual. In our notice of the previous edition we pointed out that the author's plan was to present the mathematical aspects of chemical science before dealing with rudimentary facts. We always maintain that the student should be made familiar with a few facts by experiments under his own observation before discussing theoretical principles. The present edition has been decidedly enlarged, 30 more pages having been added, while the number of illustrations and tables has been materially increased. We can only repeat what we wrote in a notice of the second edition, published in THE LANCET of Feb. 9th, 1901, that, although a "Lehrbuch," the author has managed to give within its covers a very comprehensive and lucid treatment of the subject and that the work is thoroughly up to date, ample references being made to the standards of atomic weight which have recently been codified by well-known authorities. The coloured illustrations are admirable and refer chiefly to the spectra of the rare elements. Since the second edition was issued we observe that the author has resigned his professorship at Halle and has become a professor in the Royal Technical High Schools in Berlin.

Experimentelle Beiträge zur Pathologie des Blutes. (Experimental Contributions to the Pathology of the Blood.) By Dr. P. SCHMIDT. With four lithographic plates. Jena: Gustav Fischer. 1902. Pp. 42. Price 3*s.*—This treatise is devoted chiefly to an inquiry into the nature and origin of the basophile granules in red corpuscles observed in certain conditions of anæmia. After a brief *résumé* of previous research on the subject Dr. P. Schmidt gives an account of his own work and then in discussing the whole question compares his results with those of other workers. He obtained the phenomenon of basophile granulation most readily and certainly in rabbits and guinea-pigs after subcutaneous injections of phenyl-hydrazin. From his own researches the author is led to the conclusion that these granules are of nuclear origin and are for the most part produced by the division of the nucleus which precedes the regeneration and multiplication of the corpuscles in conditions of anæmia. He finds them closely associated with the appearance of normoblasts and polychromatism in the blood. In this view he is opposed to E. Grawitz who regards the granules as degeneration products of the hæmoglobin contents of the corpuscles. The author meets the main objection of E. Grawitz that this basophile granulation is not found in the blood-forming centres, such as bone marrow and the spleen, by pointing out that even the nuclei of normoblasts and of marrow cells in these centres stain very feebly, and considers, therefore, that the inability to establish the presence of this granulation in marrow may be due to inefficient methods of staining. He states, moreover, that he has actually found undoubted evidence of basophile granulation in the corpuscles of normal bone marrow on one occasion. His discussion of the whole subject is interesting, but it cannot be said that the conclusions which he draws from his experimental data are entirely convincing.

Ferments and their Actions. By CARL OPPENHEIMER, M.D., Ph.D. Translated from the German by C. AINSWORTH MITCHELL, B.A. Oxon., F.I.C. London: Charles Griffin and Co., Limited. 1901. Pp. 343.—The introductory part of this work is devoted largely to what may be termed the polemics of fermentation. The author has made an attempt "to formulate a comprehensive conception of the notion 'ferment' on a dynamic basis and starting from this standpoint to regard the theory of ferments as a theoretically closed field of discussion." Thus he has treated the enzymes and organised ferments as a connected whole. Basing his attitude upon the researches of E. Buchner, which practically removed the old distinction between organised and unorganised ferments, he starts with a comprehensive conception of a ferment which he says can only be of a dynamical character. He decides, therefore, that enzymic processes are of a chemically exothermic kind. He then describes the mode of action of various ferments and closes with a section in the general part of the work on the Importance of Ferments to the Vital Processes. The special part of the work is divided into (*a*) the hydrolytic ferments, of which pepsin is a type, and (*b*) the oxidising ferments, of which yeast with the diastases is a type. There are very many points in regard to the nature and action of ferments which require further elucidation and already in the light of fresh researches several authorities on the subject find that they have to shift their ground. The translator in his preface points out the view of the author that a ferment can never effect a synthetic process, whereas comparatively recent researches have shown that the action of lipase is a reversible one. The work forms a very convenient and handy text-book of reference on the subject.

Lectures on Chemical Pathology. By C. A. HERTER, Professor of Pathological Chemistry, University and Bellevue Medical School, New York. London: Smith, Elder, and Co. 1902. Pp. 461. Price 7*s.* 6*d.*—With a few exceptions this volume contains the subject matter of a series of lectures delivered by the author at the University and Bellevue Hospital Medical College, New York, during the sessions of 1899-1900 and 1900-01. It may be assumed,

therefore, that the subject of chemical pathology is approached in accordance with the latest developments. A rapid glance through the somewhat closely printed pages shows that this is so. At the end of each lecture a list of the literature on the subjects treated is printed and the literature referred to is of quite recent date. In the chapter on Water and the Inorganic Salts the author suspects that the constant use of carbonated waters is sometimes harmful in several ways, as through local irritant action or through an accumulation of gas in the stomach favourable to the production of atony. He points out that in the case of the dog the introduction of large volumes of carbon dioxide into the stomach and intestine is quickly followed by a decided alteration in the reaction of the urine, acid urine becoming rapidly neutral or alkaline. Further, it is stated that clinical experience has shown that there are some persons in whom uric acid calculi are more rapidly formed when carbonated waters are used than when "still" waters are used. In the same chapter there is an excellent disquisition on alkaline waters and purgative saline waters. The lectures obviously deal largely with the practical side of the subject, but, on the whole, we think that the author has entered somewhat too strongly into controversy. The volume is a very handy one for students and practitioners, covering a vast range of subjects within comparatively small compass, and the details are presented in a decidedly bright and intelligible manner.

Analytical Records FROM THE LANCET LABORATORY.

HÆMOGALLOLES.

(KASSLER AND WOLFF, 101, FLEET-STREET, LONDON, E.C.)

HÆMOGALLOL is the name given to a substance produced from hæmoglobin by the action of the reducing substance gallic acid. The effect of gallic acid is to remove one atom of oxygen from each molecule of hæmoglobin. It follows that the product hæmogallol contains a larger percentage of iron than does pure hæmoglobin. Our analysis gave the percentage of iron (Fe) as 0·19. It is a reddish-brown powder which may be conveniently administered inclosed in capsules (hæmogalloles). Clinical trials show that this form of iron is readily assimilated without causing disturbance in the alimentary canal. It has been employed with good results, according to reports from German clinics, in anæmic conditions. It would appear to be an excellent form of iron in those cases in which that metal is indicated.

(1) "IRRESISTIBLE" AND (2) "BRIGADE" WHISKIES.

(HATCH MANSFIELD AND CO., LIMITED, COCKSPUR-STREET, PALL MALL, LONDON, S.W.)

1. The analysis of this whisky was as follows: extractives, 1·40 per cent.; mineral matter, 0·01 per cent.; and alcohol, by weight 37·67 per cent., by volume 44·79 per cent., equal to proof spirit 78·50 per cent. In regard to secondary products the following were the results per hectolitre of absolute alcohol: acidity in terms of acetic acid, 53·52 grammes; aldehydes, 18·57 grammes; furfural, 4·46 grammes; ethers reckoned as ethyl acetate, 73·07 grammes; and higher alcohols, 89·20 grammes. This whisky gives results consistent with the description that it is "blended," while its somewhat high proportion of acidity and ethers indicates that it has been matured in sherry casks. The spirit has a delicate rather than a full malty flavour. It is entirely free from the physiologically bad products of immature whisky. 2. The analysis of this whisky was as follows: extractives, 1·00 per cent.; mineral matter, 0·01 per cent.; and alcohol, by weight 38·22 per cent., by volume 45·41 per cent., equal to proof spirit 79·57 per cent. On determining the amounts of secondary products the following were the results given in grammes per hectolitre of absolute alcohol: acidity in terms of acetic acid, 39·60 grammes; aldehydes, 15·70 grammes; furfural, 3·14 grammes; ethers as ethyl acetate, 49·32 grammes; and higher alcohols, 73·26 grammes. These results indicate that this whisky has been stored for a shorter period than the previous specimen and, moreover, that it has been more freely blended. The amount of ethers coupled with the acidity would, however, indicate that it has been stored in sherry casks. The flavour is only slightly malty, but the whisky is free from raw products.

KRONENQUELLE MINERAL WATER.

(SCHACHT WAGNER AND CO., 55, FORE-STREET, LONDON, E.C.)

The waters of Kronenquelle at Salzbrunn in Silesia are well known. They belong to the mildly saline and slightly carbonated class. According to our examination, however, Kronenquelle water may also take a place in the category of lithiated waters, for, according to spectroscopical examination, this water contained a distinct amount of lithia. Further, on concentrating a quarter of a litre and eliminating the calcium and sodium salts a distinct precipitate of phosphate of lithium was obtained on adding a solution of sodium phosphate. The character of the water may be judged from the following analysis which we made: total mineral matter, 2·10 grammes per litre; carbonate of soda, 0·837 gramme per litre; carbonate of lime (with magnesia), 0·685 gramme per litre; and sodium chloride, 0·16 gramme per litre. The water contains only a slight excess of carbonic acid gas. It is agreeable to the taste and has a peculiar cleansing sensation in the mouth, owing doubtless to the alkaline carbonate. The water has been used in the treatment of gout and it is no doubt useful when a course of alkaline lithiated water is indicated.

NON-ALCOHOLIC BEER.

(H. B. MAY, DYSON'S-LANE NURSERIES, UPPER EDMONTON, LONDON, N.)

Though it is not strictly true to describe this beer as absolutely non-alcoholic, yet it contains, according to our examination, less than 2 per cent. of proof spirit, which is within the Excise limit. It contains nearly 3 per cent. of malt extractives. The beer is agreeable to the taste, having a malty flavour and the bitter taste of the hop. It is a good deal lower in alcoholic strength than lager beer, while it certainly has similar refreshing qualities.

STERILISED SWISS MILK, JURA BRAN.

(THE SWISS MILK SOCIETY, PENINSULAR HOUSE, MONUMENT-STREET, LONDON, E.C.)

The analysis of this milk was as follows: total solids, 12·70 per cent.; fat, 3·69 per cent.; and mineral matter, 0·78 per cent. The milk is thus of excellent quality with a satisfactory percentage of cream. The milk was quite sterile, a result which is all the more satisfactory since the flavour was that of fresh milk. There was an entire absence of "scalded" flavour. We could find no indication of metallic contamination and it is stated that the bottom of the tin is not soldered, so that the milk is not burnt in the hermetically sealing process.

VARIOUS SOAPS.

(E. COOK AND CO., EAST LONDON SOAP WORKS, BOW, LONDON, E.)

On examination the toilet soaps submitted proved to contain an excellently pure soap basis and in no instance was any evidence obtained of free alkali. Amongst those examined were baby soap, white rose and cucumber soap, rose soap, honey soap, oatmeal soap, butter-milk soap, glycerine and cucumber soap, almond and glycerine soap, white lily soap, and rose and cucumber soap. All the foregoing are admirably adapted for toilet purposes; they are economical in use and contain a minimum of moisture and are free from irritants. A similarly excellent soap basis is employed in the preparation of the medicated soaps containing respectively coal tar and carbolic acid. Finally, we have examined three soaps—namely, paraffin soap, petroleum soap, and lightning cleanser—which are made for ordinary household use. We found them powerfully detergent and the soaps containing petroleum and paraffin are correctly

described and contain some free alkali. The lightning cleanser, however, gave no reaction distinctive of alkaline excess. These soaps contain no foreign ingredients beyond those described; they are free from objectionable resins and silicates.

New Inventions.

UNNA'S PASTES AND HOT-WATER BATH.

THE "pastes" consist of gelatin discs containing zinc oxide, boric acid, ichthyol, iodoform, resorcin, carbolic acid, or other agents used in dermatological practice. The discs loaded with these medicaments are somewhat larger than a five-shilling piece and about three times as thick. In practice the disc is placed in a water bath specially constructed for the purpose. As shown in the illustration the water bath consists of a spirit lamp over which is placed a water-container, upon the top of which a shallow porcelain dish rests. The discs are placed in the porcelain dish in which, as soon as the water boils, they melt, furnishing a liquid paste which may be painted on the affected part with a camel-hair pencil. This method of preparing applications for dermatological use offers several obvious advantages. The apparatus and discs are supplied by Messrs. C. J. Hewlett and Sons, 40, 41, and 42, Charlotte-street, London, E.C.

AN ASEPTIC SOAP CRADLE.

THE accompanying figure illustrates a very simple and useful adjunct to the wash-basin for the use of medical men and others. The apparatus consists of a base constructed of stout wire in triangular form. On the apex of this triangle a wire framework adapted for holding a bottle swings and by means of a handle the bottle may be tipped and a supply of liquid soap obtained. The quantity of soap discharged can easily be regulated. The manner of using the apparatus will be seen in the accompanying illustration. The soap

cradle may also be attached to the wall. A cork with double perforation is fitted into the neck of the bottle. A glass tube is passed through one of the perforations to within a short distance from the bottom of the bottle. Through the other perforation a short piece of glass tube is fitted. The liquid soap passes out of the short tube, air taking its place through the longer tube. The bottle is made of brown non-actinic glass and the label consists of sand blast lettering. The apparatus is supplied by Messrs. Reynolds and Branson, 13, Briggate, Leeds.

A NEW SPLINT FOR COLLES'S FRACTURE.

MR. JAMES S. ASHE, of the Adelaide Hospital, Dublin, has invented a new splint for the above fracture for which the following advantages are claimed. It can be used for both arms. An extension movement can be obtained, together with any degree of adduction or abduction. It consists of two parts: (1) the splint proper and (2) the crutch. The splint proper is a piece of wood about five inches by three inches by a quarter of an inch with a screw at one end which allows the crutch to be racked out to any degree according to the size of the arm, &c., and there fixed. The crutch is T-shaped and is composed of metal; the cross-piece being wood is the part held by the hand; the limb has a cut-out groove in it which slides up and down on the screw of the splint proper, another screw allowing it to be fixed at any angle. The accompanying illustration explains the working. Messrs. Down Brothers, Limited, of St. Thomas's-street, London, S.E., are the makers.

Looking Back.

FROM

THE LANCET, *SATURDAY*, MARCH 12, 1825.

FOREIGN DEPARTMENT.

ANALYSIS OF FOREIGN MEDICAL JOURNALS.

REVUE MEDICALE—JAN.

Croton Tiglium.

From some researches made by M. CAVENTOU on this vegetable, he has ascertained that the oil extracted from it, which has become extensively used in this country, is precisely similar to an oil procured from the seeds of a plant, called in France, *Pignon d'Inde*, and, therefore, suggests it as a substitute for the former. M.M. Recamier and Kapelar have made some comparative experiments with the two oils, and have shown that their action is identically the same.

Thridace.

The juice of the *lettuce* introduced into practice by Dr. Duncan, and highly extolled by him as a substitute for opium, has been lately examined by M. François, and he has discovered what he considers to be the active principle of the plant, to which he has given the name of Thridace.

On the Use of Citric Acid in Uterine Hæmorrhage.

In No. 8 of the present volume, we gave an abstract of a paper read on this subject at the Royal Academy of Medicine on the 13th of January. Dr. Macleod, considering the introduction of a lemon into the cavity of the uterus to be a very novel, not to say an ingenious procedure, submitted it to the notice of the Westminster Medical Society, for the purpose, we suppose, of eliciting the opinions of the persons present respecting it. A discussion ensued; Dr. Granville expressed himself as opposed to the remedy, considering it to be unsafe and ineffectual. Some gentlemen conceived that there would be great difficulty in getting the lemon out. It might be introduced easily enough, but how was it to be extracted? A silence followed; the question was so important, that it required the most serious deliberation, and such it received! With the greatest imaginable gravity, and with the air of one "profoundly skill'd in analytick," Dr Copland arose; *Dr. Copland, Consulting Physician to the Queen's Lying-in Hospital cum multis aliis honoribus*, modestly *suggested* "that a small bit of string should be fastened to the extremity of the decorticated lemon, by the aid of which it might be safely withdrawn." !!

The suggestion was excellent, it dissipated all doubt and difficulty; it was the very *quod erat demonstrandum* of the question, and the Society testified their approbation by great laughter and applause.

THE LANCET.

LONDON: SATURDAY, MARCH 14, 1903.

The Vaccination Acts.

MR. BALFOUR has informed Parliament that there is to be no new Vaccination Bill this session and that the Act of 1898 is to be renewed, though probably only for a single year. This probability carries with it the possibility, or perhaps more than the possibility, of a Vaccination Bill being introduced in the next session of Parliament. The Prime Minister vouchsafed no reason whatever either for the non-introduction of a new Bill this year or for the proposed continuance of the 1898 Act for only a single year. As regards the latter point, we rather appreciate this non-committal attitude. When the Bill of 1898 was in the House of Lords it will be recollected that it was passed only owing to the hope held out by the Government that a Revaccination Bill would be introduced in the following session. That hope remains unfulfilled and we trust that Mr. BALFOUR and his colleagues are a little ashamed of having in effect misled Parliament on that occasion. It is certainly better for them on such a question to say less than they mean rather than more and possibly the present reticence is more hopeful than the former comparative effusiveness.

It has, we think, been the contention of Dr. F. T. BOND, secretary of the Jenner Society, that there ought to be a year's delay before the introduction of a new Bill and that the year should be taken advantage of to hold some kind of inquiry into the working of the 1898 Act. There is, however, no Parliamentary hint of any formal inquiry, and indeed it may safely be assumed that the Local Government Board has during the whole period of the operation of the most recent Act been carefully noting alike its virtues and its defects. In these circumstances there seems to be no strong reason for any other inquiry, but at the same time it is quite possible that if the actual drafting of a Bill has already been undertaken at Whitehall questions may have arisen which cannot be settled off-hand and which, therefore, may usefully be considered at greater leisure, so as to have everything in readiness for the introduction of a well-thought-out measure at the beginning of the next session of Parliament. The relation of the new educational authorities to the administration of the Vaccination Acts, and especially to any provision relating to revaccination, is a question which may require careful discussion and consultation between the central health authorities and the central education authorities. We are very willing to hope that reasons such as these, together with pressure of public business in other directions, have largely entered into the Government's decision to defer any fresh legislation on this important subject.

Meanwhile, evidence continues to accumulate of the need for legislation. It is a humiliating confession that though we know quite well how to prevent small-pox there yet should have been in the provinces of England since the beginning of the year between 2000 and 3000 cases of the disease, as Sir MICHAEL FOSTER has elicited by means of a question in Parliament, and that in 1901–02 there should have been about 10,000 cases in London, and in 1900–02 much over 2000 cases in Glasgow, and a few years earlier very nearly 2000 cases in Gloucester. Every one of these facts is a reproach to the nation and to its methods of government. At a time when the protection of the public health is receiving more attention than ever before, when elaborate efforts are being made to prevent tuberculosis, when we are deploring our comparative helplessness to check the spread of cancer and are entering on most careful research in the hope of removing our inability concerning it,—while all this is being done there yet remains the paradox that as a nation we knowingly permit one of the foulest diseases that has ever afflicted humanity to exact its yearly toll of sickness and of death, accompanied by all the incidental evils that small-pox invariably carries in its train, though there lies ready to our hand an easy and simple and very safe method of reducing its ravages practically to the vanishing point. Judging from his freely expressed views on the whole subject the President of the Local Government Board is fully alive to these anomalies and to the national disgrace under which we at present rest in this matter. Indeed, one of the best hopes of an early removal of this scandal from our public health administration is to be found in the fact that the Minister who is at the head of the department which has special charge of such questions is himself so keenly conscious of the utter indefensibility of the present position.

Though the whole subject of vaccination is of infinitely more importance to the public than to the profession of medicine, there is yet one body of medical men who have a grievance to suffer so long as the present system continues. Elsewhere in this issue of THE LANCET (p. 754) there is reported a series of resolutions adopted at a meeting of public vaccinators at Plymouth. It is not necessary to refer to all the points which they raise, but obviously they are asking only common justice in requesting that public vaccinators should be as independent in position as are vaccination officers. At present the latter cannot be dismissed except with the consent of the Local Government Board, while the former are regarded as being only under contract terminable by four weeks' notice. If a competent medical man, with the usual responsibilities of life to face, is to devote any large portion of his time to special work such as vaccination under appointment by any local body it is obvious that he should have reasonable security for the permanence of his position. Days or hours periodically devoted to vaccination are so much time taken from other branches of professional work and a man who is capriciously deprived of office cannot immediately substitute for the lost occupation such employment as he could have secured in the time given to official duty in former years. Proper and impartial consideration of questions of emolument between employer and employed cannot be carried on under constant threat of dismissal from office in the event of non-acceptance of offered terms. What the exact remuneration of public vaccinators should be is a complicated question on which we do not profess to enter here. In fixing fees under the

Act of 1898 it is quite possible that payment for revaccination during epidemics, as distinguished from primary vaccination at ordinary times, did not receive sufficient consideration, and boards of guardians have a right to express their views on such a subject. What we insist on is, however, that due discussion of these points cannot but be hampered by the present utterly unsatisfactory tenure of office.

In the resolutions referred to we are glad to note that the public vaccinators recognise the right of the ordinary medical practitioner to consideration by the Government in respect of vaccination work duly and efficiently performed. The proposal is that every practitioner should receive a fee for every certificate of vaccination performed in accordance with the standard of efficiency recognised for public vaccination. That seems on the face of it a reasonable solution of a question which is not unattended by difficulty, and it is to be hoped that whatever legislation be introduced on the whole subject the Association of Public Vaccinators will take steps to impress on all its members their duty to exercise the utmost discretion in the practice of domiciliary vaccination and to avoid all reasonable ground for criticism by the medical attendants of the households into which they are called in the course of their official duties.

Broncho-pneumonia.

THE etiology and pathology of lobar pneumonia are now thoroughly understood and although this affection has usually been considered a pulmonary disease yet many authorities consider that it should be placed amongst the specific fevers and perhaps the term "pneumonic fever" would be a more apt one than "pneumonia."

With regard to broncho-pneumonia—otherwise called "catarrhal," "lobular," or "patchy pneumonia"—less unanimity prevails. Professor E. AUFRECHT[1] considers that a catarrhal inflammation of the mucous membrane of the finer and finest bronchi is an absolute condition upon which broncho-pneumonia depends; in this view he is supported probably by most observers. Dr. SAMUEL WEST,[2] however, considers that cases of broncho-pneumonia in children may be divided into two groups according as the disease has been preceded by bronchitis or not, and he calls these groups "primary" or "idiopathic" and "secondary" respectively. Broncho-pneumonia, whether primary or secondary, is met with chiefly in the early years of childhood and becomes less and less frequent as the fourth and fifth years approach. It can hardly be said that children are less susceptible to bronchitis after the age of four years than before, yet broncho-pneumonia, as has just been pointed out, becomes much less frequent after that age. If lobar pneumonia is due to a specific infection it scarcely seems reasonable to assert, as Dr. WEST points out, that children under four years of age are less susceptible than children above that age, especially as the pneumococcus is found almost as frequently in the broncho-pneumonia of little children as it is in the lobar pneumonia of the adult. From this fact in the bacteriology of the disease the suggestion arises that the form which the inflammation takes in the young child depends upon some peculiarities in the lungs as compared with those of the adult. Dr. WEST maintains that the respiratory mechanism in children presents many such peculiarities. The chest walls are elastic and yielding owing to the incomplete ossification of the ribs and the thorax approaches the cylindrical in form; the type of respiration is diaphragmatic rather than costal and remains so up to about the sixth or seventh year. In structure, also, the lungs of children present many notable differences from that which is found in the adult; thus, the trachea and main bronchi in the young child are much larger; the other branches are also larger in the child than in the adult, and occupy greater relative space; the air cells are smaller and the interstitial tissue of the lung is more abundant. There are other differences which might also be mentioned, but those which we have named are sufficient to justify the suggestion that inflammation in the lungs of young children may assume a form unlike that which is seen in older patients. Dr. WEST, therefore, arrives at the conclusion that the same exciting cause—e.g., a pathogenic organism such as the pneumococcus—which in the adult and older children excites a lobar inflammation, in very young children usually causes a lobular inflammation. If this contention is correct the distinction drawn between primary or idiopathic broncho-pneumonia and secondary or catarrhal broncho-pneumonia requires to be carefully considered both on clinical and pathological grounds. In support of this classification Dr. WEST records several cases illustrative of each group. The instances which he relates differ considerably in their type and course and certainly corroborate his views. The bacteriology of broncho-pneumonia, so far as it is known, also testifies to the value of his theory. He quotes the results of several observers and the evidence thus adduced shows that in secondary broncho-pneumonia the streptococcus is the most frequent organism that is found, whilst in primary broncho-pneumonia it is the pneumococcus, and it is further proved that in the latter affection the pneumococcus is almost as common as it is in the lobar pneumonia of adults.

In dealing with the main differences between the morbid anatomy of croupous pneumonia and broncho-pneumonia respectively, Professor AUFRECHT states very definitely that "catarrhal pneumonia never has a granular cut surface," and he also gives in great detail the microscopical conditions found in each variety of the disease, which, in his opinion, differ considerably. Dr. WEST, on the other hand, says: "It is now well known that the microscopical distinctions often drawn between the minute lesions of lobar and lobular pneumonia cannot be regarded as absolute and that, for example, even the fibrin network which is so common in acute lobar pneumonia is not uncommon in acute broncho-pneumonia, while it may be absent in lobar pneumonia." The views which we have quoted will thus be seen to be somewhat diverse. We believe, however, that modern research tends to corroborate the classification suggested by Dr. WEST. The division into primary and secondary varieties undoubtedly removes some of the difficulties which are felt at the bedside, but further investigations are

[1] Professor Nothnagel's Encyclopedia of Practical Medicine.
[2] Diseases of the Organs of Respiration.

required to elucidate the difficulties now existing. Bronchopneumonia is unfortunately not a rare disease and consequently plenty of material can be obtained for clinical observation, and if other observers confirm the statement that cases of this disease can definitely be divided into two groups great assistance will be derived in regard to treatment, and also in reference to the prognosis, in individual cases.

The Working of the Midwives Act.

THE remarks made by certain of the speakers at the meeting recently convened by supporters of the Midwives Act, under the chairmanship of Sir MICHAEL FOSTER, require a little consideration from us. It will be seen from the report of this meeting published in THE LANCET of March 7th, p. 679, that the supporters of the measure, having succeeded in Parliament in securing legislation more or less in accordance with their wishes, do not look forward with entire confidence to the working of the Act when its application comes into force. They wish, therefore, to pre-concert measures which shall achieve the object for which the Act has been framed—viz., the relief of the parturient poor, and in any such endeavour they will have the sympathy of the medical profession shown none the less cordially because the majority of medical practitioners, like ourselves, think it probable that the Midwives Act renders subsidiary efforts in behalf of the parturient poor particularly needful.

In calling to mind the main provisions of the Act it appears to us that the consoling feature of its progress through Parliament was the amendment which caused the inclusion of a clause penalising the practice of midwifery by those not certified under the Act. The inclusion of this penalty clause saved the Act from being largely ineffective. No woman is to be certified under the Act as a midwife unless she has complied with rules and regulations that are to be formulated by a Central Midwives Board the formation of which has been settled upon and the duties of which will soon commence. The Central Midwives Board, besides regulating the course of training of midwives and appointing examiners, will publish annually a roll of duly certificated midwives and will decide upon the admission to the roll of women already practising as midwives. Every council of a county or county borough throughout England and Wales is to be the local supervising authority over midwives within its area. Every woman certified under the Act before holding herself out as a midwife or beginning to practise must give notice in writing to the local supervising authority. In this way the women certified as midwives under the Act will be brought under local and general control, so that the public will feel that their employment, so long as they keep within their sphere of knowledge, is unattended with the risk entailed by the services of the old-time monthly nurse. But if this qualified measure of security is counterbalanced by a drying up of the supply of midwifery nurses the benefit derived by the public is surely a shadowy one. The objections which we and a large majority of the medical profession have always had to legislation for the registration or certification of midwives have been often set out in our columns. We think it opportune to allude briefly to them, so that when the new Central Midwives Board begins to work its members may take all steps to guard the public. The duties of a midwife are not clearly defined in the Act, nor is there any special provision made to secure that she shall immediately seek the aid of a medical man when confronted with pathological conditions that are beyond her skill. There can be little doubt that in the eyes of that large class for whose welfare she has been called into being the certificated midwife with her limited training will rank as the equal of the medical man. Services will be asked of her that can only safely be performed by those who have full medical and surgical experience. Acquaintance with one particular physiological process when it is normally performed must not, in the public interest, be allowed to qualify a certificated midwife to play the part of a general practitioner. We shall rejoice as heartily as any promoter of the Midwives Act at the disappearance of the dirty GAMP, and shall hail with delight, giving credit where the credit is due, any distinct abatement in infant mortality that can be traced to its working; but we would urge upon the Central Midwives Board the necessity of making certificated midwives understand that there are limitations to their duties and responsibilities.

At the meeting already alluded to which was convened by Mrs. HEYWOOD JOHNSTONE at the Grosvenor-crescent Club, it was evident that the chief difficulty anticipated by the supporters of the Act relates to the supply of midwives in rural districts. The anticipation is likely to be well founded. The number of certificated midwives available in 1903 will largely depend upon the freedom with which the Central Midwives Board grants certificates to women who are now gaining a living as monthly nurses. If the Central Midwives Board adopts a low standard of training and character there will be as many midwives as at present, but the Act will be a fiasco. If, on the other hand, it insists upon good character and efficient training in obstetrics, then the dearth anticipated will be no doubt severely felt, especially in rural districts. As Dr. R. BOXALL has pointed out, trained midwifery nurses are with difficulty induced to exercise their calling in the remote country parts. The first step on the part of the board towards securing a sufficient number of midwives should be to find out through the medical men and clergymen of the various districts which of the women now acting as midwives can with safety be certificated. Then with the aid of the medical man those regions left stranded by the removal of incompetent midwives should form themselves into self-supporting associations to keep the services of a properly trained midwife for attendance on the parturient poor. Such a nurse should know when to ask the assistance of a medical man. This plan is more or less the one suggested by Mrs. HEYWOOD JOHNSTONE and forms the only solution, so far as we can see, of the impending difficulty. In short, the less that the Act interferes in country districts with the existing condition of things the better chance it will have of not breaking down altogether in some of its operations, but, also, the less chance will it have of remedying the evils which justify its presence on the statute book. This can hardly be called a strong argument for new legislation.

Annotations.

"Ne quid nimis."

THE ROYAL MEDICAL BENEVOLENT COLLEGE.

ON Wednesday, June 10th, H.R.H. the Prince of Wales will preside at a festival dinner of the Royal Medical Benevolent College in aid of the funds of the charity and in celebration of the jubilee of the laying of the foundation stone of the College. It is not to the credit of the medical profession that such a noble institution as the Royal Medical Benevolent College should have to plead so earnestly and so repeatedly for funds to carry on its splendid work. Had it not been for the dauntless courage and untiring efforts of a few medical men this good work would have been considerably curtailed and while the profession would have had a less effective charity both the profession and the public would have lost an educational institution of merit. We have so often urged the claims of the College that we hesitate again to remind our readers of the scope of its work, but we feel sure that all who love their profession and its institutions will bear with us in appealing to those who for one cause or another may have overlooked a charity which ought to be their peculiar care. The Royal Medical Benevolent College provides pensions for aged medical men and the widows of medical men in reduced circumstances, together with a school open to all classes, but offering special advantages to the sons of medical men, 50 of whom are foundation scholars. There are 50 pensioners who receive £30 a year each. The 50 foundation scholars, we should mention, receive an education of the highest class and are boarded, clothed, and maintained at the expense of the College. For the benevolent side of the institution a sum of over £6000 is required annually and the greater part of this amount is derived from voluntary contributions. As we have already mentioned, the jubilee of the College is close at hand and in a building 50 years old it is not surprising to learn that considerable structural alterations have been found necessary and that sanitary defects have had to be remedied. There is also a debt owing to the bankers of nearly £3000. To clear off these liabilities and to put a little money by are now the objects of the council and we feel sure that the medical profession will do its utmost in some measure to repay the kindness of his Royal Highness in presiding by subscribing the £10,000 for which the council is appealing as a jubilee fund. But if the Royal Medical Benevolent College is to take the place which it ought to take among the charities of the profession by continually enlarging its sphere of usefulness something more will be required than great efforts made at widely separated intervals of time. The flow of charity must be a steadily increasing one from year to year. In England alone there are over 20,000 registered medical men. If every one of these were to subscribe only 10*s.* per annum it would mean that the income of the College would be £10,000 a year. Ten shillings a year is not a large sum: it is less than threepence per week, and with a banker's order given for the sum to be paid regularly the disbursement would scarcely be felt. But the united subscriptions would make a vast difference to the usefulness and power for good of the College.

A PLUCKY DEED.

AT the levée held on March 9th His Majesty the King presented Captain Herbert Cumming French, R.A.M.C., with the decoration of the Albert Medal, second class. The service for which this decoration was awarded was as follows. On Nov. 17th, 1902, H.M. Transport *Wakool* was steaming through the Straits of Malacca at a rate of about 12 knots per hour when a native fireman jumped overboard. Captain French, who was a passenger, immediately dived into the sea from the promenade deck, a height of about 36 feet, and swam to the place where the fireman had been last seen. When, however, he reached the spot the man had sunk and Captain French, becoming exhausted by the weight of his clothing, had to make for a life-buoy. Both men were eventually rescued by the life-boat. A strong current runs at the place and Captain French ran great risk of being caught by the ship's screw and, in addition to this danger, sharks and water snakes are frequent in the Straits of Malacca. We congratulate Captain French on his plucky deed and the recognition of it at the hands of His Majesty.

LEO XIII. AND HIS JUBILEE.

ONE of our Italian correspondents writes under date, Rome, March 7th:—"The Pope seems destined to do credit to Italian medicine, from Celsus to Lapponi. True to the prescriptions laid down by the former in his famous first chapter, for the first 68 years of his life he lived as the Roman Hippocrates says every 'sanus homo qui et bene valet et suae spontis est' ought to live, 'partly in the country, partly in the town, and, oftener than not, in the open air. He ought to yacht or hunt,' or allow himself the recreation of rod or gun. In this latter form of outdoor exercise the Pope, when Archbishop of Perugia, was exceptionally proficient and after an enjoyable day on the Umbrian hill-sides he would return with a heavy bag of red-legged partridges for distribution among the hospitals of his diocese—a feat he thereafter celebrated in Catullian hendecasyllabics for the amusement of the dean and chapter. From this life of the student alternating with that of the sportsman he passed, just 25 years ago, to the Vatican, there, as supreme Pontiff, to play the part of 'prisoner' (with doors locked on the inside) and to assume the reins of an empire on which, if the sun never sets, a cloud ever hangs. It is at this stage that his body-physician found his responsibilities really begin. True, his august charge inherited the constitution and the wiry physique of a long line of mountaineers, advantages strengthened by plain living, high thinking, and out-door recreation, systematic without monotony. But confinement even to 'a palace and a garden' on the least healthy of the hills of Rome involved a sudden change of habits, nay, a revolution in the *modus vivendi* which put the preceding 68 years of well-ordered life to a severe test. However, as Dr. Lapponi himself is the first to admit, His Holiness is an exemplary patient, observing with promptitude and in entire good faith the prescriptions from time to time submitted to him and reinforcing the regimen with that best of all auxiliaries to the professional man, the will to live. It is thus that he performs feats of endurance, mental and physical, that would impose a formidable strain on men 20, or even 25, years his junior and that the ordeal of his pontifical jubilee on March 4th left him fatigued doubtless, but much less so than hundreds upon hundreds of the 60,000 spectators who from all parts of the world thronged St. Peter's for the ceremony. Not that this marvellous vitality or resisting power ever lulls to sleep the vigilance of his body-physician. On the contrary, Dr. Lapponi, well aware how often in practice the unexpected happens, is never more alert than when all the omens seem to be most favourable and redoubles his precautions down to the minutest details, not only of diet and rest in the recumbent posture, but even of clothing and temperature and the transition from one suite of apartments to another. He himself, indeed, is feelingly reminded in his own person—

'Quid valeant humeri quid ferre recusent,'

and complains, good-humouredly enough, of the constant

siege which he undergoes at the hands of continental quidnuncs eager for the latest information as to the condition of his venerable patient. On the day before the great ceremony of March 4th he had to cut off all telephonic communication with his own residence, the assault of the said quidnuncs having previously been so persistent that they declined to accept as 'information' even the bulletin which he had authorised the members of his family to quote in reply to them! But, as he assured a friend quite lately, he forgets all these worries in the far more trying cares that beset his patient, whose self-abnegation really grows with the demands made upon it and whose life seems inspired by the watchword of the great French eccle-iastic, 'Rest! we shall rest thro' Eternity!'"

THE FUTURE OF ST. GEORGE'S HOSPITAL.

WE have received from Mr. C. L. Todd, the secretary of St. George's Hospital, some papers which have been circulated among those interested in the matter relative to a proposal to remove the hospital from its present site to one of greater extent. The question is one that has been under debate in an informal way for some time among St. George's men. The papers give the reasons why some of the governors of the charity have proposed the removal of the hospital and these may be summarised by saying that the increasing difficulty of carrying on the work of the hospital in conformity with modern ideas, which has been for some years past increasing, has now become insuperable unless a considerable extension of the present site and buildings of the hospital can in some manner be obtained. The amount of medical and surgical work done by means of the hospital beds has doubled during the past 30 years, entailing a greatly increased staff of nurses, officers, and other employés, for all of whom additional accommodation has now to be found. The governors of the hospital have during the last 12 years made every effort, by rearrangement and enlargement of the existing buildings, to provide this accommodation, but the limits of practical extension have been reached. The same story of inadequacy of space must be told of the out-patients' department. This and all the various special departments of the hospital are suffering from want of room. The proper quarters for an x-ray installation, for systematic treatment by baths, for electrical treatment, for the Finsen treatment of lupus, and for other modern therapeutical developments have to be found. With regard to the medical school, those who advocate removal point out that it has for years been suffering from the exiguity of its premises and prophesy that it will not be possible much longer to carry on educational work at Hyde Park Corner. It will thus be seen that those who propose the removal of the hospital can make out a very strong case. But the same may be said for those who object to the revolutionary course. Those who would preserve St. George's Hospital in its present site hold that the site would not be insufficient for the purposes of the hospital alone if the nurses' home and the medical school could be accommodated elsewhere. It might be necessary to remodel the central block of the building, but the expense of this and of rehousing the school and the staff taken together would be nothing compared to the expense of rebuilding a large general hospital on a new site in the west end of London. The extreme difficulty of finding a site large enough for the purpose anywhere in the west of London is obvious, while it is equally clear that any change which would remove St. George's Hospital far away from its present position would entirely alter its whole organisation, as well as deprive London of a receiving-house for the numerous accidents in the parks and streets that converge at the west end of Piccadilly. The governors of St. George's Hospital have an extremely difficult question before them, one, indeed, on the solution of which the whole future of a dignified and valuable London charity of many years' standing may depend. We are certain that they will discuss the *pros* and *cons* of the removal of the institution with all care and forethought. They will receive a great deal of gratuitous advice, the cocksureness of which will always be proportionate to the ignorance of its donors. But as this will probably be apparent to them they may be expected to disregard it. In one way the situation may be easier for those who desire to remain in their old quarters than it has been for some time. The excavations of a tube railway have considerably reduced the value, at any rate temporarily, of the houses in St. George's-place immediately to the west of the hospital, so that extension in this direction is no longer out of the bounds of imagination on the score of expense.

THE PREVALENCE OF SMALL-POX.

CASES of small-pox continue to be reported from various places in the north of England. The disease has broken out among navvies working at Harrogate. Over 300 cases are under treatment at Liverpool and Salford and Leeds are also suffering. Small-pox has broken out in Winson Green Gaol, Birmingham, while Keighley, a great anti-vaccination centre, is also affected by an outbreak. After all, there is no argument in favour of vaccination so cogent as an outbreak of small-pox. In the South of England six cases have occurred in one family at Braunton, Devonshire. The cases were of such a mild nature that the first four were considered to be chicken-pox. The infection was apparently imported from Cardiff. An inquest was held by Mr. Wynn Baxter on March 6th at the Whitechapel Infirmary upon the body of a man who was found in a dying condition in the street by a policeman. The cause of death was hæmorrhagic small-pox. Dr. R. Dudfield, medical officer of health of the borough of Paddington, has issued his report upon the epidemic which prevailed during 1901 and 1902. The outbreak in Paddington lasted for 14 months and in all 132 cases were notified. Of these 15 were notified in error, so that only 117 cases are dealt with in the report. The 117 cases occurred in 81 houses; 61 were males and 56 were females. With regard to vaccination state, "unvaccinated" includes both those who had never been vaccinated and those who were only vaccinated after infection. The following table shows the vaccination state and age periods of the fatal cases:—

Fatalities per 100 Cases of each Group.

Ages.	Unvaccinated.	Vaccinated in infancy only.	Revaccinated.
0–15 years	50·0	—	—
15–30 ,, ...	42·8	4·3	—
30–45 ,, ...	50·0	22·2	25·0
45–60 ,, ...	—	16·6	100·0
60 years and upwards	—	—	—

At first sight the mortality percentage among the revaccinated cases looks alarming, but there were altogether only seven cases of small-pox in this group. Two were females and neither died; five were males and of these two died—one aged 43 years revaccinated 20 years previously and one aged 46 years revaccinated 25 years previously. It is this case which brings the mortality of the 45–60 group up to 100·0, being the only revaccinated case in the group. The other figures in the table speak for themselves. At all ages the cases, vaccination state, and deaths were as follows: never vaccinated, 11 cases with six deaths; vaccinated after infection, six cases with two deaths; vaccinated in infancy only, 94 cases with 10 deaths; and revaccinated, seven cases with two deaths. One of these cases, an infant infected *in utero* and aged 13 days, was not notified and so is additional to the

117 notified cases. The number of revaccinations increased from 156 in 1901 to 8688 in 1902, while the successful primary vaccinations increased from 1590 in 1901 to 2777 in 1902. As will be seen by a statement from our Dublin correspondent there are 16 cases of small-pox in that city and on March 8th 1 patient died from the disease in the corporation isolation hospital.

ANNUAL DEBATE OF THE CHELSEA CLINICAL SOCIETY.

THE members of the Chelsea Clinical Society commenced their annual clinical debate on March 10th at the Jenner Institute, Chelsea-gardens, London, S.W. The subject was Diabetic and Non-Diabetic Glycosuria and the debate was opened by Dr. W. Hale White, whose remarks will be found in full in this issue of THE LANCET, p. 714. Dr. Hale White was followed by Dr. F. W. Pavy who in the course of his contribution to the discussion defined diabetes as "a more or less persistent defective assimilative action upon the carbohydrates of food resulting in glycosuria." A full report of the debate will be published in our next issue. The two other speakers were Dr. R. Saundby and Dr. J. Rose Bradford.

URÆMIC ULCERATION OF THE SKIN AND MUCOUS MEMBRANES.

WE have recently in an annotation referred to the intestinal lesions of uræmia.[1] The cutaneous lesions of kidney disease resemble the intestinal ones in that they are also ill recognised and only in recent years have received attention. Erythematous, urticarial, papular, purpuric, and pustular eruptions have been described. In connexion with a case of uræmic ulceration of the duodenum with hæmorrhage reported to the Société Médicale des Hôpitaux of Paris by M. Barié and M. Delaunay (described in the annotation referred to), M. P. Dalché and M. Henri Claude reported at the meeting of the society on Jan. 23rd an analogous and equally interesting case of hæmorrhagic ulceration of the skin and mucous membranes in uræmia. A woman, aged 36 years, was admitted to hospital. Eight years before there was albuminuria during pregnancy which disappeared after labour. During the next six years her health was fairly good. Then began headaches, gastro-intestinal troubles, and fugitive œdema of the legs and eyelids. Dyspnœa, palpitation of the heart, and epistaxis appeared and three months before admission ecchymotic spots were observed on the limbs. Hæmorrhages into the mouth, near the anus, and at the umbilicus followed in this order. Hæmorrhage in the last position was present on admission. The disease progressed rapidly and the patient died about a month after admission in a state of profound cachexia without having presented any acute symptoms of uræmia, but cryoscopy showed progressive insufficiency of renal excretion. At the necropsy granular kidneys were found. M. Dalché and M. Claude laid emphasis on the characters of the hæmorrhages and ulcers which gave the case a special clinical aspect. On the limbs were purpuric spots and ecchymoses distributed almost symmetrically. At the umbilicus and anus there was a slight oozing of blood the source of which was not evident. The saliva was constantly bloody and hæmorrhages occurred from the tongue and mucous membrane of the cheeks. The tongue was yellowish white and at its sides were hypertrophied papillæ with fissures between them from which blood constantly oozed. A small hæmorrhagic ulcer and some purpuric spots were observed on the right side of the soft palate. On the mucous membrane of the cheeks two gangrenous patches appeared. Around the anus were small round ulcers with slightly elevated borders from which blood issued. In the week preceding death the buccal hæmorrhages became more and more abundant; the ulcers on the cheeks extended and became covered with a false membrane, the attempted removal of which increased the hæmorrhage. Ulceration gradually took place at the umbilicus, resulting in two bleeding ulcers of the size of a 50-centime piece with indurated and elevated borders. In the last days of life they extended to the subcutaneous cellular tissue. In all the lesions the process seemed to be the same: an extravasation of blood took place in the deeper layers of the skin or mucous membrane and was followed by destruction of the overlying tissues and hæmorrhage. The base of the ulcer had the characters of necrosis and not of inflammation. Histological examination confirmed this view; purely necrotic changes were found. Purpura is a well-known manifestation of uræmia, but usually is not accompanied by hæmorrhage from the skin. M. Barié in 1889 described uræmic stomatitis, but in this affection the ulceration differed from that in the present case: it was inflammatory and painful, the borders of the ulcers were not elevated, there was no hæmorrhage, and the tongue was not affected. It is noteworthy that the ulcers occurred only on parts subject to friction—the tongue, mouth, umbilicus, and anus. In other parts, no doubt in consequence of the re-establishment of the circulation, the hæmorrhages were not followed by ulceration. The cause of extravasation of blood in uræmia is doubtful. Amongst others alterations in blood pressure, in the vessels, and in the coagulability of the blood have been proposed. Schönemann has recently examined the mucous membrane of persons who died from uræmia and had epistaxis. He found an increase in the number of the capillaries, which were so near the surface that some of them had perforated the basal membrane and insinuated themselves between the epithelial cells. Thus the capillary loops would be ruptured by the slightest injury. In the present case the blood showed no loss of coagulability. The necrotic lesions of uræmia described above show an interesting analogy with diabetes in which such lesions occur.

[1] THE LANCET, Feb. 14th, 1903, p. 468.

STEAM TRAFFIC IN THE STREETS.

IT is difficult of course to define sharply the difference between a motor car and a steam engine, but we are confident that the Locomotives on Highways Act of 1896 was never meant, at any rate in crowded cities, to license the running of a steam engine little short of the dimensions of a railway locomotive with a string of cars behind it through the streets. Yet recently in certain thoroughfares in the West-end a steam engine drawing a number of cars, the whole train being much on the same scale as a goods train on the railway, has been a common spectacle. Even down the narrow thoroughfare of the Strand at busy times of the day we have seen gigantic—there is no other word for it—steam boilers drawn along by a big powerful steam engine. The time surely has not come when our streets may be used with safety to the public as railroads. It seems to us to be placing a very elastic and audacious interpretation upon the meaning of the Act, which was intended for motor cars conveying persons in the same way as a carriage, and not for heavy goods at all. An accident occurred this week in which a coachman lost his life through the starting of a horse at the sight of one of these huge engines and its train of heavily loaded vehicles. If this engine and its cars are to be allowed the use of the streets without let or hindrance we may confidently expect further disaster. The London County Council, by means of its by-laws, should exercise the powers which it possesses in this matter. We think that such traffic in the busy streets of London should be prohibited altogether

or else relegated to the small hours of the morning or at a time when the ordinary traffic practically ceases. We should like to know what the effect of this heavy steam traffic is likely to be upon the various mains in the streets. The consequences that may arise from the crushing of these mains are really alarming, considering the close proximity of the water mains, gas mains, and the high-pressure electric mains. As long as the streets are to be permitted for the use of engines and wagons on the same scale as railroads we may well shudder at the awful possibilities of turning electric currents astray and of letting loose gas and water at the same time.

CANCER "CURES."

IN the *Pall Mall Gazette* of Feb. 27th a short article appeared which was called "A Triumph of Electricity." It concerned itself with the cure of cancer by "high frequency" electricity and the gist of it was that a "doctor" who lives "in a handsome house not a hundred miles from Hyde Park" and is "one of the first and foremost private medical men in this line" and "one who may in all truth be said to have advanced even a step or two further than any other" has discovered that "high frequency" is the cure for cancer. Reference is also made to the opening of a hospital for the application of his treatment. There are also in circulation just now a printed leaflet and a letter about the same matters and in these appears the name of Mr. E. A. Cloete Smith. He has a hospital not far from Hyde Park. The letter recommends the high frequency treatment of cancer as against the use of the Roentgen rays and mentions Mr. Smith as the skilled operator. Considering the nature of cancer and the slow and laborious work which is being done in many quarters to try to solve the problem of finding a successful treatment for it—considering, too, the slight encouragement which is leading investigators forward into the x ray and other electrical methods in spite of many disappointments—it certainly seems that Mr. Smith and his friends are doing much harm and little or no good by announcing that the disease can be cured, and that by high frequency electricity. The facts about high frequency and cancer are that whereas some relief of pain and some temporary decrease of size in the tumour may be obtained by high frequency we are nevertheless baffled in the attempt to obtain anything which may be called a cure. Much more painstaking work has to be done before arriving at the goal and it is uncertain whether the desired result will be reached at all or not. Certainly it is not by proceedings like those of Mr. Smith that success is to be found. The evidence in favour of the efficacy of the x rays is considerably stronger than any which can be adduced as yet for high frequency. A few cases which have been reported of high frequency "cures" have proved to be fallacious and some at least of the patients reported as "cured" have died from a recurrence of their disease.

A QUESTION OF REMUNERATION UNDER THE POOR-LAW.

A CORRESPONDENT who is medical officer to a workhouse, having received a letter from his board of guardians requesting him to attend at an early hour every day to examine the tramps in the casual wards before they leave, in order that cases of small-pox may be detected in the earliest stage, asks us to give our opinion as to the amount of remuneration that he would be entitled to claim for the performance of so inconvenient, so constant, and, in this case of a gentleman engaged in general practice, so objectionable a duty. It is somewhat beyond the limits of possibility to define the exact value of medical services and especially when they are of such a nature as those here indicated. A knowledge of the appointments held under the board of guardians and of the class of the patients in the practice conducted by the surgeon concerned would be necessary for the making of a correct appraisement. The most important factor in the position will be found in the terms of the contract between our correspondent and his guardians. At his appointment as medical officer were the casual wards put in his care? In other words, has he visited sick casuals as part of his duty at the workhouse? If the answers to these questions be in the affirmative then it will appear that the guardians, under the powers given by Article 207 of the general consolidated order, can call upon him to visit the wards at the hours which they may fix and without payment other than the salary otherwise given. On the contrary, if the duty of visiting the patients in the casual wards has been added to the duties of the workhouse medical officer, or if the number of such visits was agreed upon originally and has now been increased, then our correspondent will have a right to claim further remuneration. To enable him to estimate the value of the extra services demanded from him it may be mentioned that many of the metropolitan workhouse medical officers have had to undertake an additional duty recently—namely, to visit once or twice a week, or when required, the new receiving homes for children, and that the salary added for these visits has been about £40 per annum.

HASHEESH AS A CAUSE OF INSANITY AND CRIME.

Dr. John Warnock, medical director of the Egyptian Hospital for the Insane, Cairo, records in the *Journal of Mental Science* for January last the results of his observations on "hasheesh," or cannabis indica, as an agency in the production of insanity and crime, drawn from an experience which is exceptionally large in this field of medicine. It is pointed out that Ibn Beitar, an Arabian physician, was the first to recognise an insanity from the use of hasheesh, A.D. 1235, but the drug had then been in use probably for many centuries. At present the drug is largely consumed in Egypt, adds Dr. Warnock, although its importation is prohibited by law. The fact that about 16 tons of hasheesh were confiscated in Egypt during the year 1901 will give some indication of the extent of its use. "Most of the drug is consumed by smoking in the gozeh [an Egyptian pipe] and in cigarettes, but a considerable amount is eaten in pill form and in sweetmeats, magoon, &c." The usual reason given by patients for using hasheesh is that it induces a general feeling of pleasure and content. When eaten in pills and sweetmeats it seems to be taken chiefly as an aphrodisiac. Insanity from hasheesh belongs to the "toxic" group which includes insanities due to alcohol, opium, and cocaine. Dr. Warnock classifies the insanities from hasheesh under the following types. First there is the temporary intoxication from hasheesh which is attended with pleasurable exhilaration. Pleasant, half-waking dreams, not unlike those of the opium-eater, occupy the mind, but active excitement, as in alcoholic intoxication, is uncommon. Secondly there is a delirium from hasheesh, which is associated with hallucinations of sight, hearing, taste, and smell. Great exaltation, restlessness, and sleeplessness are marked features, but there is an absence of the tremors and physical exhaustion of alcoholic delirium tremens. The third variety is a more acute form of excitement attended with hallucinations, incoherence, destructiveness, indecency, and impulses towards violence. Delusions of poisoning or of persecution are common in this affection. States of depression and terror may be intermingled with excitement. These cases tend to pass into a chronic condition which constitutes the fourth class. Eventually there succeeds a

condition of permanent dementia with loss of memory, apathy, and degraded (wet and dirty) habits, a state of terminal dementia which ends in death. A fifth class includes "degenerates" in whom there arise periodically strong cravings for hasheesh. Persons of this class, adds Dr. Warnock, are "good-for-nothing, lazy fellows, who live by begging and stealing; ..... the moral degradation of these cases is their most salient symptom. ..... While in the asylum they are notorious for making false charges, refusing to work, and quarrelling. Irritability, unconcern as to the future, malingering, and fervent promises of reform are all marks of this state." The craving for the drug in this affection is not so great as in dipsomania or morphinomania. In the earlier stages such persons usually commit crimes and find themselves in gaol. Later, when intellectual impairment becomes more marked, they are sent to an asylum. The similarity between this condition and that of dipsomania, adds Dr. Warnock, is evident, while many of the differences are probably due to racial peculiarities. Suicidal attempts in insanity due to hasheesh are rare. The drug, however, appears, concludes Dr. Warnock, to play a more important part in the production of insanity in Egypt than alcoholism in England, while as a cause of crime it appears to be as important in Egypt as alcoholic excess is in England.

THE ROYAL COMMISSION ON LONDON TRAFFIC.

WITH the institution of a Royal Commission there is at least the beginning of a prospect that the streets of London may in the future provide something more than a notable example of the judicious exercise of police authority. There is no more striking object for the foreign visitor to London than the policeman's outstretched arm—a silent symbol of recognised authority behind which are halted a score of patient omnibus teams which doubtless would, if they could, sympathise with the smothered imprecations of their own and neighbouring drivers. The management of London road traffic by the London policeman is no doubt a fine spectacle, but no one will be sorry to see the difficulties removed, however eloquent a testimony to national character may be the manner in which those difficulties are at present met. We call the London policeman in face of London traffic a testimony to national character because no less conservative nation would have tolerated so long the overcrowded condition of London thoroughfares, nor, having such a state of affairs actually to deal with, would the police force of any other nation be able to control the situation with such equanimity and good nature—a good-humoured acquiescence in accepting inconvenience common to the authorities and to those whom they control. The large number of street accidents in the metropolitan areas bears a close relation, there can be little doubt, to this condition of congested traffic. We have many times attempted to stir the municipal authorities to a keener sense of the inadequacy of existing arrangements for the provision of first aid and of ambulances for the unfortunate victims of street accidents. It will be a more drastic remedy than any such improved provision if future arrangements can actually diminish accidents instead of merely disposing of them more conveniently. We shall be more content to endure our present ambulance arrangements, improving as they at least are, if a future system of underground railways, of wide streets, and of better division of traffic renders street accidents materially fewer. Up to now the Central London Railway has been remarkably safe so far as injury to life and limb is concerned and in proportion as more traffic is diverted from the roads to the railways it is to be hoped that a greater safety will prevail among the travelling public in London. "Motor" traffic is as yet an almost negligible factor on London roads. It may fairly be anticipated that this will not be so within a very few years and that the Commission will consider the possibility of such a change. How far the substitution for horse power of electric and petrol engines will increase the public safety we cannot yet fairly judge. Electric shock mishaps have occurred with some frequency, it is true, yet they are fewer probably than is imagined, their somewhat sensational and novel nature leading every such incident to be recorded prominently and consequently to be impressed upon the public mind with an *éclat*, so to speak, that is not accorded to the mere victim of a runaway horse or of an overturned hansom. We are presuming that underground railways and public motor cars will be a feature in the traffic arrangements of the future, but even if these innovations are delayed there is scope for much improvement in the regulation of London traffic. The Embankment is a wide road but it is not sufficiently employed; the river provides a melancholy spectacle of deficient enterprise; the omnibus is a cumbrous if useful vehicle that takes up far too much room; and cab traffic might well go through Hyde Park within certain hours. When ideas such as these so readily suggest improvements to the interested spectator of London roads day by day it may well be hoped that extensive improvements may be evolved from the combined intelligences of a well-chosen Royal Commission. We look forward to the day when a journey from Hyde Park Corner to the Strand, let us say, will be less than half occupied by waiting in the confines of various "blocks."

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

IN accordance with the advice of Sir William McGregor, K.C.M.G. C.B., M.D., Governor of Lagos, West Africa, the Liverpool School of Tropical Medicine has drawn up a set of simple instructions for the prevention of malaria, primarily intended for the guidance of Europeans living in malarial or tropical countries and in the employment of British mercantile firms. These instructions contain the results of the most recent observation and experience on the subject and they deserve the careful attention of all residents in malarial districts. The opening paragraphs explain that malaria is contracted only from the bite of the anopheles, that black-water fever occurs only in those who have suffered periodically from malaria, and that complete protection may be secured by observing certain precautions which, as above mentioned, are put in the form of regulations to be carried out on the premises of a mercantile house and relate to the use of mosquito nets and wire-gauze screens, the taking of quinine, and the supervision of all collections of water.

1. *Mosquito nets.*—The senior should satisfy himself that all the European employés of the firm invariably sleep within mosquito curtains of a mesh of not less than 10 holes to the inch and kept free from rents. Rents are most easily mended by twisting up the net at the point of breakage and tying round with a piece of string. The net should, when in use, be hung inside the poles and tucked in under the mattress. When not in use the free sides of the net should be drawn together, twisted somewhat, and thrown across the top of the net. The net should not have a slit or join in the side. A mosquito is never found inside a properly used net. It is wise to tack on a piece of material all around the net, above the level of the mattress so as to protect the limbs from bites through the net during sleep. Mosquito boots to protect the ankles in the evenings may also be recommended.

2. *Quinine.*—All the European employés of the firm should take at least 15 grains of quinine per week and should report in writing to the senior that they are doing so.

3. *Mosquito-proof room.*—The senior should see that the quarters provided by the firm for their European employés possess at least one sitting-room, or portion of a verandah securely protected by screens of wire gauze against the entry of mosquitoes. The room or portion of verandah selected for protection should be that which is commonly used by the inmates from sunset to bedtime.

4. *Punkahs.*—The senior should see that the office of the firm and the common dining-room of the European employés are provided with punkahs or electric fans to be used during office hours and during meals respectively.

5. *Details.*—The senior should see (1) that the premises of the firm are provided with at least one rubbish bin (with a cover); (2) that all cisterns, tanks, tubs, and other vessels required for the permanent storage of water are furnished with accurately fitting covers and also with wire-gauze caps to the pipes for the purpose of excluding mosquitoes; (3) that all useless pits, pools, tanks, disused wells, and other unnecessary collections of water within the premises of the firm are filled up or drained away; (4) that al open and permanent collections

of water really required for irrigation, washing, or other purposes are treated once a week with kerosine oil for the destruction of larvæ; (5) that the surface and rain-water drainage of the premises is good and that the drains and roof-pipes are in proper repair; (6) that the latrines are in good condition and well kept; (7) that the drinking water is obtained and stored in a cleanly manner.

The school also intends to arrange courses of lectures on the prevention of tropical diseases, to be attended by clerks, missionaries, and others, both male and female, not in the medical profession, proceeding to West Africa and other tropical countries. Each course will consist of five lectures extending over two weeks, in the months of January, May, and November. Particulars may be obtained from the honorary secretary of the school, Mr. A. H. Milne, B 10, Exchange buildings, Liverpool.

THE DISTRIBUTION OF PLAGUE.

As regards the Cape Colony the medical officer of health of the Colony states that for the week ending Feb. 14th 5 cases of plague were discovered at Port Elizabeth, 1 being a European male, 1 a Malay male, and 3 native males, 2 of the latter being found dead. The cases were discovered on the following dates: 2 on the 8th, 1 on the 9th, 1 on the 10th, and 1 on the 12th. At the end of the week 3 cases remained under treatment at the Plague Hospital, Port Elizabeth. Plague-infected rats continued to be found in the town of Port Elizabeth during the week. Also at Graff Reinet plague-infected rats and mice were found during the week ended Feb. 14th. No case of plague has been discovered in any other place in the colony. As regards Egypt the Director-General of the Sanitary Department states that since Feb. 6th no cases of, or deaths from, plague have occurred throughout Egypt. The 3 cases that were under treatment have been discharged from hospital recovered.

THE PATHOLOGY OF GIGANTISM.

IN the *Revue Neurologique* of Jan. 31st Dr. P. E. Lannois and Dr. Pierre Roy give an account of the pathological observations made post mortem on the French giant, P—— K——, whose height was 2·12 metres (6 feet 11½ inches), and who recently died from cerebral tumour in a hospital in Paris at the age of 36 years. It is stated that at the age of 18 years he had nearly attained his full stature. An interesting discussion is given concerning the clinical features observed in this case and their correspondence with the post-mortem findings and the conclusion is reached that the gigantic stature in this case was due to acromegaly. Thus, in the year 1900 the patient showed distinct signs of this condition, the lower jaws being then abnormally enlarged and elongated, the tongue and nose being hypertrophied, and the hands appearing huge and spade-like. A marked degree of glycosuria developed at this stage, and at the same time he began to suffer much from præcordial pain, palpitation, and paroxysmal attacks like those of angina pectoris. As the glycosuria progressed emaciation set in, and a steadily progressing hebetude made itself manifest. Occasional epileptiform convulsions occurred which led to the suspicion of cerebral tumour, and owing to the associated condition of acromegaly being present it was possible to diagnose the tumour as being one of the pituitary body. The patient died during one of his fits and the necropsy revealed the following conditions. The cranial bones were much thickened and the sella turcica or pituitary fossa was found to be enlarged and occupied by a tumour of the size of a large Barcelona nut, measuring one and three-fifths of an inch transversely. The growth extended into the right lateral ventricle of the brain and also projected forwards slightly between the fronto-orbital gyri. It was a primary epithelioma of the anterior lobe of the pituitary body, its outline was well defined, and although it pressed upon the brain substance it did not infiltrate the latter. "The pituitary tumour," add Dr. Lannois and Dr. Roy, "explains at once the gigantism, the acromegaly, and the diabetes." Another feature of interest was the enlarged thyroid gland which weighed 250 grammes, or ten times the normal weight—a condition which has been termed "compensatory hypertrophy" and which has been regarded by most observers as in some way associated with the destruction of the pituitary body. Such a hypertrophy of the thyroid has been noted in 13 out of 34 cases of acromegaly collected and published by Dr. G. Hinsdale of New York in 1898. There was also in the present case evidence of tuberculosis at the apex of the left lung. Dilatation of the sella turcica had been noticed in the skulls of giants by Tartuffi in 1877, and in a memoir on the skull and skeleton of the Irish giant MacGrath Professor D. J. Cunningham pointed out (1891) that a similar condition was present and that the bones also showed evidences of acromegaly. Gigantism and acromegaly are now known to be closely related conditions, and Dr. Lannois and Dr. Roy conclude that they are both phases of a morbid process of bodily nutrition due to a lesion of the pituitary body.

DREAM-FAITH.

THE recent sad case of drowning at Shanklin with the sensational evidence given at the inquest by a fisherman's wife who found the corpse, will be treasured with avidity no doubt by large numbers of persons. Amongst all classes there are to be found plenty of individuals who "believe in dreams" and a larger number still who, though not prepared to affirm their actual belief, yet think that probably there is "something in them." These people hold, in fact, that mere coincidence will not account for such occurrences as that to which we are referring. It will be remembered that the body of the unfortunate Miss Lumsden was found upon the rocks by a woman who stated at the inquest that she was led to search this spot by having on three successive nights dreamed that she saw there the corpse of the missing lady. Such a statement is at once enough to convince the believer in dreams. It fulfils at a breath all his hopes and carries out to the full visionary aspirations which perhaps he has approached hitherto but has never seen definitely realised. To such people it would be vain to ask how many other fishermen's wives in and about Skanklin dreamed of the unhappy lady lying cold and dead upon the rocks. Scientific investigation of the foundation of their creed is not for dream-believers, and though in a hundred cases the same dream were to occur—as it probably did in this instance—to different people the ninety-nine where it proves false are ignored in the jubilant acceptance of the one case where the dream coincided with the facts. Generally speaking, indeed, the enormous numbers of dreams, the thousands nightly that never, so to speak, "come off," are entirely disregarded in the presence of the one that hits off the facts—or at any rate appears to do so afterwards. For, with all the honesty in the world, the imagination of a poor woman dwelling by the sea, fostered as are the imaginations of a sea-shore folk by the winds and waves and suggestive sights and sounds of the waters, is flexible to the extreme and readily takes for true what suits its natural trend. The very number of times that the dream occurred is suggestive. Three is the favoured numeral of the superstitious and we can quite believe that if this fisher-wife had but dreamed her dream on two occasions, or a night or two apart, these would have welded themselves in her imagination into three successive nights. The natural desire of humanity for communication with the supernatural has been a feature of the human race ever since the earliest times of which we have any record.

Such desire, unless safeguarded by some definite religious organisation, always leads to the wildest and most foolish superstitions. We cannot wonder at uneducated persons believing in portents, in the malign influence supposed to be exercised by a comet, in ill luck and similar superstitions, when we find persons of education and men of the world apparently seriously guiding their life's course of action by means of warnings given through the medium of a piece of wood, a penny lead pencil, two pantograph wheels, and a piece of paper.

THE SANITARY INSTITUTE.

THE twenty-first congress of the Sanitary Institute will be held at Bradford on July 7th to 11th, 1903, the Earl of Stamford being President. The section of Sanitary Science and Preventive Medicine will be presided over by Professor T. Clifford Allbutt; the section of Engineering and Architecture will be presided over by Mr. Maurice Fitzmaurice, C.M.G., M. Inst. C.E.; and the section of Physics, Chemistry, and Biology will be presided over by Professor C. Hunter Stewart. The usual popular lecture will be given by Mr. J. Slater, B.A., F.R.I.B.A. Eight technical conferences will also be held in connexion with the congress, presided over by Mr. W. C. Lupton, Professor Thomas Oliver, Dr. J. Spottiswoode Cameron, medical officer of health of Leeds, Mr. T. H. Yabbicom, M. Inst.C.E., Mr. C. Drabble, M.R.C.V.S., Mrs. Moser, Dr. James Kerr, medical officer to the London School Board, and Mr. Isaac Young.

WORKHOUSE MEDICAL OFFICERS AND REFRACTORY PAUPERS.

A CORRESPONDENT addresses us as follows:—

I shall be greatly obliged if you could give me advice on the following. A is medical officer for the workhouse and district, but not police surgeon. B is a pauper in the union, a rowdy fellow with a bad heart, who is periodically handed over to the police for assault, &c., in the house. One night lately he was arrested there and taken to the police-station. After a time the officer on duty thought him ill and sent to the union to have the medical officer of the workhouse sent to see B in the cells. A constable accompanied the messenger from the union to A's house. As A has had some difficulty before with the police staff over similar matters he replied that B having been arrested and taken to the cells he was now out of his (A's) care as a pauper, and that either they must send for the police surgeon or send him (A) a proper request from the police station, not under cover of the workhouse. A sat up till 1 A.M. (the message came at 11 P.M.) but no further communication came till yesterday, when A got a letter from his board of guardians asking him to explain his refusal to attend "unless the police paid him," and enclosing a long letter to the guardians from the superintendent of police making the above accusation and asking for payment of 3*s.* 6*d.*, the police surgeon's fees for attending the case.

Was A justified in his line of action? or was he still responsible for the treatment of B? If so, is he liable to be sent for to attend every drunken rowdy in charge who *may* be a pauper even without a relieving officer's note?

If the circumstances mentioned in the above letter include all the facts bearing on the incident and neither correction nor amplification be required, then it appears to us that our correspondent was legally justified in his line of action. Two offices are held by him—one at the workhouse, the other in the district. Article 207 of the general consolidated order deals with the former of these appointments and states that the duty of the medical officer is "to attend *at the workhouse* at the periods fixed by the guardians and also when sent for by the master or matron." Clause 2 of the same article states that the medical officer shall "attend duly and punctually upon all poor persons *in the workhouse* requiring medical attendance." (The italics are ours.) There is no clause in the article quoted, nor can we find one elsewhere, which would enable the guardians or the master to call upon the medical officer of the workhouse to visit and to attend a person who had left the workhouse. In connexion with this point it may be mentioned that it is within our knowledge that stipendiary magistrates on many occasions when refractory paupers were charged before them have asked the respective workhouse medical officers to examine the prisoners in the cells and that in each instance, so far as can be ascertained, a fee of 10*s.* 6*d.* was awarded. Evidently the magistrates were convinced that workhouse medical officers were entitled to remuneration for examining paupers at police-courts. The obligations affecting the holder of the post of district medical officer may be read in Article 206 of the same consolidated order. Briefly they are: "To attend duly and punctually upon all poor persons requiring medical attendance within the district assigned to him whenever he may be lawfully required to furnish such attendance by a written or printed order of the guardians, of a relieving officer, or of an overseer." The two extracts from the consolidated order define the position clearly enough. The police have no legal basis upon which they can demand the attendance of the parish medical officer, as parish medical officer, upon a pauper in their custody. There is a person expressly appointed for the purpose—namely, the police surgeon. Our correspondent must remember that it will be his duty under Article 205 to give to the guardians all the information that he is able to supply respecting the case. Whether it will be wise for him always to adopt the line of action legally justified is a matter for his consideration.

SUTURE OF THE PATELLA.

M. QUÉNU of Paris (as reported by our correspondent) has recently been making some researches into the strength of the union effected by suturing a fractured patella. He has shown in the dead body that if a patella is united by a wire suture by any method a comparatively small weight can cause some separation of the fragments. We should think that the separation was probably due to stretching of the wire or to partial untwisting of the "knot." That weights of 100 and 150 pounds could give rise to an interval of a quarter of an inch between the fragments does not affect at all the question of the value of suturing fractured patellæ. The object of the wire is not to hold the fragments together while a force of 100 pounds or more is applied, but it is intended to resist the pull of the quadriceps muscle and to maintain the fragments in the best position for the formation of osseous union. On no account should the suture be relied on to withstand voluntary movements of the limb. Thus M. Quénu's experimental results, though of interest, are of but little practical importance, for no surgeon trusts to wire for permanently holding the fragments together. The full time for bony union should be allowed to elapse before the patient is permitted to bear any of his weight on the affected limb. Used in this way suturing is probably the best treatment for a fractured patella, but even without operation good results may be obtained if sufficient care be taken to bring the fractured surfaces into apposition. In the present issue of THE LANCET Mr. G. T. Mockett of Burslem describes a method he employs which is ingenious. The chief point in his method is the employment of a sheet of lead with a hole in it just large enough to contain the patella. This is applied over the knee and thus the fractured surfaces are maintained in contact, strapping and bandages being also employed to fix the fragments.

THE CLIMATE OF CAIRO.

IN a footnote on p. 182 of his "Thousand Nights and a Night" (Library Edition) the late Sir Richard Burton gives it as his opinion that of late years the climate of Cairo has deteriorated. "Even as late as 1852," he says, "when I first saw Cairo, the city was girt by waste lands and the climate was excellent. Now cultivation comes up to the house walls, while the Mahmudiyah Canal, the planting the streets with avenues, and over-watering have seriously injured it; those who want the air of former Cairo must go

to Thebes. Gout, rheumatism, and hydrophobia (before unknown) have become common of late years." Now that so many English people visit the Egyptian capital every year (to say nothing of the British colony, as it is called locally) it would be useful to inquire whether in reality the Cairene climate is less salubrious now than it was before the water company was established and gardens became common in the suburbs of the ancient city. Formerly the only place where verdure was to be seen was at the Hôtel du Nil, off the Mouski. Then the Esbekieh gardens were created by Ismail Pasha, and soon afterwards gardens sprang into existence wherever there was room for them but especially in the new Ismailiyah quarter. Two at least of the diseases mentioned by Sir Richard Burton are not commonly supposed to be due to excessive moisture, but there are no doubt complaints which increase in virulence, even if they do not originate *de novo*, when land hitherto arid and undisturbed has been subjected to the influence of irrigation. In Dr. Engel Bey's latest publication dealing with meteorological subjects [1] the head of the statistical branch of the Egyptian sanitary department inclines to the belief that the climate of the Delta has undergone some modification in consequence of the "regularisation of the waters of the Nile" under English engineers. But before he can pronounce a definitive opinion on this question he says, in conclusion, it will be necessary to wait until a longer series of observations becomes available. So far the fringe of this interesting subject alone has been looked at, but so great is its importance to the country that in his opinion it urgently demands an exhaustive examination.

A PERNICIOUS HABIT.

ON the labels of some boxes of cigarettes at present being sold to the public is a statement to the effect that the cigarettes are made of the purest tobacco and paper obtainable and that, therefore, the smoke from them may be inhaled safely and without irritating the respiratory passages. We do not hesitate to say that such a statement is highly mischievous and that the practice of inhaling smoke into the lungs is attended with considerable risk to the health of the smoker. It is to be feared that the cigarette is responsible largely for the prevalence of this objectionable habit of inhaling tobacco smoke; the pipe- or cigar-smoker is as a rule not addicted to it because probably the smoke is too strong or too irritating. But the fact that the smoke of a cigarette may be unirritating does not minimise the evil effect of drawing the smoke into the lungs, for by this method the absorption of the poisonous constituents of tobacco smoke (and all tobacco smoke is more or less poisonous) is very rapid, these entering quickly into the circulatory system by way of the pulmonary capillaries. Even in the mouth and nasal passages there is some amount of absorption, but this is trifling compared with that which takes place in the lungs. The practice of inhaling tobacco smoke is therefore strongly to be discountenanced and vendors of cigarettes should refrain from printing on the boxes mischievous statements such as that to which we have alluded. There is no reason for believing that smoking tobacco in a rational way is productive of harm; on the contrary, it is the common experience that when moderately indulged in it serves to allay restlessness and irritability, but the sequelæ to the habit of inhalation may indeed be dire, the heart and nervous system being chiefly affected. Yet many cigarette-smokers inhale the smoke into the lungs, as may be seen from the fact that very little of the smoke which they draw from the cigarette is afterwards ejected. In the same way the smoke from the burning end of a cigarette from its close proximity to the nose is sometimes taken into the lungs, occasionally producing stupefying effects.

[1] Le Climat du Caire et d'Alexandrie, Cairo, 1896.

THE WEIGHT OF EVIDENCE.

IN THE LANCET of Jan. 31st, p. 344, we published under the heading, "The Risks of Medical Practice," a note upon a case heard at the January quarter sessions held at Margate. The case was one in which a medical practitioner, William Herbert Ray, had been sentenced to six months' hard labour for unlawfully assaulting a girl. The only evidence against the medical man was apparently that of the prosecutrix herself and we considered that it "opens up a dangerous vista if any medical practitioner can be convicted of outrageous conduct on the unsupported word of a patient." A report of a somewhat similar case is before us in which a Guernsey journalist named Percy Edward Amy was sentenced at Guernsey on Feb. 18th to ten years' penal servitude on the mainly uncorroborated evidence of a girl. The charge, according to the evidence of the complainant, was that on the evening of Jan. 18th Amy enticed or persuaded her to go to his room at the office of the *Guernsey Evening Press* and there by saying that he could lock her up (she had been discharged on suspicion of dishonesty from her last place) and by saying that he would chloroform her persuaded her to undress. He undressed himself and then whipped complainant with a cord or strap. He then, we gather from the report of the trial in the *Guernsey Evening Press* of Feb. 18th, raped her. After this the complainant and the prisoner walked to church together. Next morning she told her mother all that had happened. The medical evidence bore out the girl's story as to the whipping but, according to the report, there does not seem to have been evidence given as to the rape. For these reasons and considering that the jury only found the prisoner guilty by seven votes to four, we consider that the sentence should be revised. In Mr. Ray's case, too, we consider that as the evidence of the girl was totally uncorroborated there is every ground for a revision of his sentence as well.

THE EFFECTS OF BORIC ACID AS AN INTERNAL MEDICINE.

DR. G. MERKEL of Nuremberg has published in the *Münchener Medicinische Wochenschrift* of Jan. 26th, an article dealing with the effects of boric acid as an internal medicine. He also refers to the injurious effects of this drug when used as a food preservative, especially when such preserved food is given to invalids. Attention was called to this subject some time ago when an annotation on the subject of cases of boric acid poisoning was published in THE LANCET of Nov. 30th, 1901, p. 1514, based upon the observations of Rinehart. Dr. Merkel states that boric acid taken internally in medicinal doses produces irritation of the gastro-intestinal tract. His conclusions are based upon observations made on 11 patients suffering from various slight ailments, but in whom the gastro-intestinal tract was normal. Boric acid was given in doses of from one to two grammes daily in aqueous solution. The longest period of administration was eight days and the shortest was two days. In seven of the 11 patients disturbance of the gastro-intestinal tract commenced shortly after taking the drug. The chief symptoms were formation of gas in the stomach and intestines, eructations, colic, pain in the epigastrium, and diarrhœa. As the patients were free from gastro-intestinal trouble before taking the boric acid the characteristic troubles which followed were, it is urged, undoubtedly due to the drug. The use of this drug, therefore, concludes Dr. Merkel, is contra-indicated in the case of invalids or persons in delicate health. It should not, he thinks, be used as a preservative for milk and

"canned" foods. Food "preserved" with it may be taken sparingly by healthy persons, but such food should never be given, in his opinion, to invalids.

DINNER OF THE MEDICAL SOCIETY OF LONDON.

THE 130th anniversary dinner of the Medical Society of London was held on March 7th at the Whitehall Rooms, Hôtel Métropole, Mr. A. Pearce Gould, the President, being in the chair. 176 Fellows and guests sat down to dinner, among the latter being the Lord Chancellor, Lord Sandhurst, the President of the Royal College of Physicians of London, and the Presidents of the Royal Medical and Chirurgical Society, the Clinical Society, and other learned societies. After the usual loyal toasts "The Medical Society of London" was proposed by Sir William S. Church, Bart., K.C.B., who drew attention to the broad basis upon which the society had been founded by 30 physicians, 30 surgeons, and 30 apothecaries. The President replied. The toast of "The Guests" was proposed in a humorous speech by Sir Frederick Treves, Bart., C.B., K.C.V.O., who mentioned the fact that long before the rest cure had been adopted by the medical profession it had been instituted under the ægis of the legal profession at Portland where the sea air and the regular hours and meals had promoted the health of the convicts. The Lord Chancellor, in reply, mentioned that the medical and the legal professions had this in common, that they both worked for the corporate welfare of the community. The Hon. R. P. Porter, U.S.A., also replied for the guests and mentioned incidentally that the Medical Society had "started in business" before the United States of America, having been instituted in 1773. The toast of "The President" was proposed by Sir Richard Douglas Powell, Bart., K.C.V.O., and Lord Sandhurst, in seconding, said that he wished to take the opportunity of paying a tribute to the devoted services which had been rendered by the medical profession in stamping out the plague in Bombay at the time when he was Governor. Music and songs were contributed by Mr. T. G. A. Burns, Dr. F. G. McCann, and Dr. S. Henning Belfrage. The gathering was universally voted to be one of the most successful of those which have been held by this ancient society.

COUNTRY HOLIDAYS FOR LONDON FEMALE WORKERS.

THERE can be no doubt that an annual holiday is a physical and mental necessity for all who work and sleep amid the noises and distractions of a great city, to say nothing of the dust and smoke which are always present in the atmosphere of London, but the poorer workers in the metropolis are but seldom able to avail themselves of the benefits of the pure air of the country. The Factory Girls' Country Holiday Fund was started some 15 years ago in the interest of girls who live and work in the neighbourhood of Saffron-hill, London. During the first year of the existence of the fund 38 workers were enabled to take a holiday; since then the work of the fund has grown year by year, until in 1902 no fewer than 3200 girls and women were sent to the country from all parts of London. This is a record of which the workers for the fund may well be proud, but the financial committee reports a deficit of £38, which we sincerely hope will be speedily cleared off when the matter is brought before the notice of the charitable public. As it is not possible to delay the payments for board, lodging, and railway fares the strain upon the finances of the fund is very great, especially as donations and subscriptions flow into the coffers of the fund slowly. The Factory Girls' Country Holiday Fund is an unassuming and very valuable charity but the present times are hard for all charities. Expenses generally are increasing, there is an oppressive income tax, while the rates rise with undeviating regularity, the London County Council having just announced an increase in its rate of 1½*d*. Nevertheless, there are many charities the operations of which might well be curtailed before those of the charity the claims of which we are now advocating. Subscriptions and donations should be sent to the chairman of the committee, St. Peter's Rectory, Saffron-hill, London, E.C., to the honorary treasurer at the same address, or to the London and Westminster Bank, Holborn Circus Branch, E.C.

THE annual festival dinner of the Irish Medical Schools' and Graduates' Association will take place on St. Patrick's Day, March 17th, at 7.30 P.M., at the Café Monico, Piccadilly-circus, London, W. Application for tickets should be made to Mr. Charles Ryall, 51, Queen Anne-street, W.

THE following gentlemen have been appointed Knights of Grace of the Order of St. John of Jerusalem in England:—Surgeon-Lieutenant-Colonel Matthew Baines, V.D. (from Honorary Associate), Mr. Reginald Harrison, F.R.C.S. Eng., and Dr. F. M. Sandwith (from Honorary Associate).

The annual general meeting of the members of the Medical Graduates' College and Polyclinic is to be held on Tuesday, March 31st at 5.30 P.M., when Sir William H. Broadbent, Bart., will take the chair.

THE laboratory meeting of the Pathological Society of London announced to be held at the Examination Hall, Thames Embankment, on Tuesday next, March 17th, will not be held.

Sir John Williams, Bart., who has retired from practice, is leaving London next week to take up his permanent residence in Wales.

THE HOSPITAL PROBLEM IN LONDON.

AT a meeting of the Hospitals Association at Caxton Hall, Westminster, London, S.W., on March 3rd, Sir TREVOR LAWRENCE (treasurer of St. Bartholomew's Hospital) took the chair. There was a full attendance to hear an address by Sir Henry Burdett, entitled "Hospital Sites and Population in London." The speaker discussed the problem as to whether any, and, if so, which, of the large hospitals ought to be moved from their present sites to new ones situated in congested districts or in the country.

Sir HENRY BURDETT said that the best way of dealing with the facts briefly was to take the City of London as a centre and then to divide the area round into five districts. District No. 1 comprised the City of London alone, and the ratio of beds to population in 1901 was in the proportion of 1 to 40. District No. 2 comprised Stepney, Shoreditch, Finsbury, Holborn, City of Westminster, Southwark, and Bermondsey, with a ratio of beds to population of 1 to 418. The third district was composed of Poplar, Bethnal Green, Hackney, Islington, St. Pancras, St. Marylebone, Kensington, Paddington, Chelsea, Battersea, Lambeth, Camberwell, and Deptford, with a ratio of beds to population of 1 to 1054. District No. 4 included Stoke Newington, Hampstead, Fulham, Wandsworth, Lewisham, Greenwich, and Woolwich, with a ratio of beds to population of 1 to 1877. The fifth district was in four home counties and was well outside the metropolitan boundary, but part of it was in the County of London. It included Essex (West Ham and Romford), Middlesex (Tottenham and Edmonton, Barnet, Hendon, and Brentford), Surrey (Croydon, Kingston, and Richmond), and Kent (Bromley and Dartford). Here the population had increased nearly 93½ per cent. and the ratio of beds to population was 1 to 2482. The usual estimate in regard to hospital beds in general hospitals in relation to the needs of the population was as 1 to 1000 people and dealing with the five districts enumerated as a whole the ratio

came out as 1 to 922. In his opinion accessibility was the most important consideration in the selection of a site for a great general hospital. In the fourth district, where there was only one bed to every 1877 people, equally satisfactory results would have been presented if South London had exhibited the same interest in hospitals and the same desire to provide the population residing therein with hospitals as had been manifested by other divisions of the metropolis. His own view was that habit governed such questions to a very great extent and the people of South London had grown up in the habit of relying upon Guy's Hospital for at least two centuries to provide them with hospital accommodation and because Guy's Hospital was an endowed institution they had never felt the need or realised the duty of contributing their share of the expenditure entailed by the upkeep of hospital beds for the accommodation of the population residing within their borders. There was evidence to show in District No. 5 that the growth in population of a place like Tottenham, where the London County Council is moving from the congested parts of London to that district upwards of 40,000 people, should render the authorities fully alive to the necessity of providing additional hospital beds. He hoped that the Tottenham Hospital authorities would continue to press the London County Council and that as a result of such action a scheme might be possible whereby the County Council would consent to provide the money necessary to build additional wards upon the excellent site which the Tottenham Hospital authorities possessed to meet the hospital requirements of the population they were settling in Tottenham. The money to build such wards could be provided with a sinking fund and in any case two things should be secured in any such settlement. First, the enlarged hospital should be left under the management of the committee elected by the governors of the Tottenham Hospital and, second, the additional revenue for the maintenance of the new beds, provided for what may be termed the County Council population, should be forthcoming through the free offerings of the new residents in the district whose requirements they are supplied to meet. He was aware that the London County Council had not at present any Parliamentary power vested in it to devote money to the erection of a pavilion or pavilions in connexion with the Tottenham Hospital to provide beds for the hospital requirements of the 40,000 people whom the County Council was about to move into the district of Tottenham. But he felt that the attitude assumed towards the housing question by the present members of the London County Council entitled the citizens to expect at their hands an intelligent recognition of the responsibilities which devolved upon them in regard to such wholesale removals into a particular district as those provided for under the Tottenham scheme. He put it to the London County Council and through them to the citizens of London. Was it right for the municipality to plant a population of over 40,000 souls in an outlying district of the metropolis without making any provision whatever for the hospital accommodation of the people who had been removed from centres where they could readily obtain such relief to a new centre where the existing population had already provided themselves with a reasonable amount of hospital beds, none of which could be made available for the newcomers introduced by the London County Council? This consideration led him to repeat that he hoped that the London County Council would seek the necessary powers and insure the provision of an adequate number of hospital beds in connexion with the Tottenham Hospital for the new population it was bringing into this district. Sir Henry Burdett, continuing, turned to the question of the removal of certain large hospitals in London to new sites in relatively congested districts. The districts in which the population was congested and which were without adequate hospital accommodation were practically three, South London, Battersea, and Tottenham. Tottenham he had dealt with and there were left South London and Battersea. South London was said to be in negotiation with the King's College Hospital for the removal of that institution to Camberwell. That would leave Deptford, Greenwich, and Woolwich unprovided for except by the Miller and the "Dreadnought" Seamen's Hospital. He suggested that the Miller Hospital might unite with the North-West London Hospital, in which case a new site must be found. In regard to Wandsworth and Battersea there was the Bolingbroke Hospital, but the ratio of beds was as 1 to 13,364 and the position should excite the sympathy of the wealthy and secure for the residents an adequate hospital. In regard to which of the large hospitals might be transferred to new sites it seemed to him that King's College Hospital might be moved and also Westminster Hospital. There was, in his opinion, no urgent demand for the removal of St. George's Hospital. With reference to Westminster Hospital he thought it could be moved to Wandsworth and amalgamated with the Bolingbroke Hospital. The speaker then observed that he had said nothing so far in regard to a hospital, St. Bartholomew's, which had been much in evidence of late. St. Bartholomew's was the only general hospital situated within the City boundaries and he could not conceive the City of London ever consenting to permit so representative an institution with eight centuries of history to be removed from its present site to any site except one which was closely adjacent to, or only just outside, the City boundaries. Such a site had been mentioned in St. Luke's, but there were very serious financial and other difficulties involved, and he did not think that the question was ripe for public discussion, nor could it be so discussed with advantage until the governors of St. Bartholomew's Hospital, who were trustees for the estates of that institution, had looked at the financial aspects of the two sites from every point of view and, as men of business, had recorded and published their decision thereon. In regard to the removal of large hospitals from cities to the country the proposal seemed to him to be impracticable if due regard was to be paid to the interests of the patients and the circumstances which affected city populations and the great hospitals which ministered to their needs. Formerly convalescent institutions were buildings to which patients were admitted when their wounds were healed and they had arrived at that stage where disease had ceased and health had to be restored. To-day many of these so-called convalescent institutions were largely utilised by residents in towns who needed fresh air and rest and who were not really in the medical sense acutely ill or frequently suffering except from general debility due to want of fresh air and change. That circumstance had no doubt led to a new departure so far as the London hospitals were concerned. Several of the general hospitals now had convalescent hospitals of their own situated in the country to which they could send suitable cases with unhealed wounds, to the great advantage of the patients. In his judgment that represented the best form in which large hospitals could keep their patients in touch with the country without incurring grave risks of adding to the sufferings and anxieties of the sick and their families in large centres of the population. It was most desirable that some reconsideration should take place in regard to the system of admitting patients to several of the great hospitals of London at the present time. The enormous growth in the number of surgical cases now admitted and of the operations which were performed, coupled with the important developments in methods of treatment, had tended to cause those who regulated the admission of in-patients to give so much preference to acute and surgical cases that very many patients suffering from relatively chronic affections which used formerly to be found in hospital wards were now relegated in increasing numbers to the Poor-law infirmary. He was inclined to think, having regard to the necessities of medical education and the claims of the suffering poor, that the present system of admitting patients to our hospitals must be reconsidered. In any case the time had arrived when the Poor-law infirmaries, in the interests of the patients they contained, should be thrown open to medical instruction. In conclusion, Sir Henry Burdett pointed out that with the exception of Wandsworth and Battersea, where the ratio of general beds to population was as one to every 13,364 people, and the district including Deptford, where there was not a single hospital bed for upwards of 110,000 people, the population within the whole of the postal districts of London was, in fact, well supplied with general hospital beds. Indeed, if they added to these beds the beds in special hospitals then every district, with the two exceptions just mentioned, showed that the ratio of all hospital beds to population was infinitely greater than that laid down by the accepted authorities as a basis for calculation—namely, one hospital bed for every 1000 people in a given district. If, therefore, King's College Hospital removed to a site situated conveniently for the population of Deptford, if the North-West London Hospital united its forces with the Miller Hospital and erected modern buildings on a site convenient for the residents in Greenwich, Lewisham, and Woolwich, and if the Westminster Hospital moved, the question of hospital sites and population in London would be placed

upon a basis adequate to supply efficiently all the needs of the residents within the county of London.

The Hon. SYDNEY HOLLAND said that one difficulty in procuring the combination of hospitals was the objection raised by the medical staffs. He failed to understand what Sir Henry Burdett intended as regards the Tottenham Hospital being helped by the London County Council. It appeared to him that the course proposed would municipalise the hospital. Turning to the suggestion that the Poor-law infirmaries should be thrown open for medical instruction he expressed his opinion that these infirmaries were of no use for such a purpose. He did not see any objection to the chronic cases going to Poor-law infirmaries—the patients did not lose their right to vote in consequence of such a measure and they were not called paupers.

Sir HENRY BURDETT, replying, said that a medical man in practice had to treat all sorts of cases and there was a vast amount of material for medical education which was wasted in the Poor-law infirmary. If medical students were admitted into the Poor-law infirmaries it would be a great aid to their efficiency in actual practice afterwards.

Mr. T. B. CAMPBELL said that in considering the question of moving hospitals they must recollect that they were dealing with voluntarily supported institutions. He spoke from his own experience of the Westminster Ophthalmic Hospital.

Mr. F. S. FRANKLIN said they had heard that it was the intention of King Edward's Hospital Fund to bring pressure to bear upon certain hospitals to induce them to move into other districts. The mere ventilation of their views at that meeting would not do much.

Mr. C. W. THIES, of the Royal Free Hospital, said that the general hospitals from the very nature of their work were obliged to concentrate their attention on acute cases. The chronic cases had to be drafted off. It had been stated that 23 per cent. of the cases that were termed "interesting" were sent up from the country. Such cases were always welcome on account of their use in medical education and because in the country there was no satisfactory accommodation for their treatment.

Dr. T. GILBART SMITH said that the London County Council accepted as one of its duties the supply of bands of music for the amusement of the people. In his opinion it was also the duty of the London County Council to supply hospital accommodation at Tottenham for the population it moved there. With reference to the value of Poor-law infirmaries for medical instruction he asked whether they would ever have learnt of Charcot's disease unless Professor Charcot had been a physician in an institution in Paris corresponding to a Poor-law infirmary.

Sir E. HAY CURRIE said that the question of moving the hospitals must be approached in the most gentle manner possible. He was of opinion that accommodation should be supplied for the incurable cases of consumption and the neglect of that precaution would be disastrous in the future.

Sir TREVOR LAWRENCE said that he disagreed with Sir Henry Burdett concerning his figures of the populations in and about London. Sir Henry Burdett had said that the people who came into London day by day might be taken as healthy, but it had been estimated that there was a daily influx to the meat and other markets surrounding St. Bartholomew's Hospital of about 40,000. He was afraid that they were not all healthy. Many of them had to do their work and earn their daily bread even if they were only able to move about. He further pointed out that if the census had been taken on a Monday morning instead of on Sunday night, when everyone was out of the City who could be, the result would have been different. In dealing with the question of moving the hospitals the desirability of economising the time of the physicians and surgeons who gave their services to the hospital should not be overlooked. Reference had been made to the patients being sent up to the London hospitals from the country districts. These patients were sent by medical men who had studied at the great metropolitan medical schools and they advised these patients to come from the country for the purpose of receiving the highest medical advice. He could not conceive of any worse service to the poor and suffering than the placing of obstacles in the way of their receiving advice from leading physicians and surgeons. In regard to the London County Council and the Tottenham Hospital he thought that the proposed step would be the first advance of that ambitious body towards acquiring control over the hospitals. He suggested that the London County Council should concern itself with relieving the hospitals from the rates and he would remind it that in consequence of the hospitals great relief was afforded to the ratepayers.

A vote of thanks to Sir Henry Burdett for his address was moved by Mr. TIMOTHY HOLMES, seconded by Mr. P. MICHELLI, of the "Dreadnought" Seamen's Hospital, and duly carried.

Sir HENRY BURDETT, in replying, denied that the proposals in regard to the London County Council and the Tottenham Hospital carried them a step further towards the municipalisation of hospitals.

The meeting concluded with a vote of thanks to the Chairman, proposed by Sir HENRY BURDETT and seconded by Mr. THOMAS BRYANT, which was carried with acclamation and suitably acknowledged.

ROYAL EDINBURGH ASYLUM FOR THE INSANE.

THE statutory annual meeting of the corporation of the Royal Edinburgh Asylum for the Insane was held in the City Chambers on Feb. 23rd. The annual report of the managers stated that the average number of all classes of patients under treatment during the year was 947, an increase of seven on the average number during the previous year. In addition to this the asylum authorities had been obliged to find accommodation in other asylums for 123 patients sent to them by the Edinburgh parish council whom it was impossible to accommodate in the asylum itself. These patients had been boarded out in the asylums of Hartwood, Larbert, Kirklands, and Rosewell. The constantly increasing number of pauper patients sent to the asylum by the parochial authorities was a source of much trouble and anxiety to the asylum officials. Towards the end of last year the matter reached an acute stage, for the wards of the asylum became much overcrowded, while at the same time there was little or no prospect of further relief being obtained by boarding out. This state of affairs was the result of the failure of the District Lunacy Board to complete the new asylum at Bangour within the stipulated period of five years. It was impossible to say at what time the Bangour Asylum would be ready for occupation, but the District Lunacy Board, on the solicitation of the managers of the Royal Edinburgh Asylum, supported by the General Board of Lunacy, had agreed to erect a temporary structure capable of accommodating 150 persons. This temporary accommodation would be ready in about four months' time and would to some extent relieve the existing congestion in the Edinburgh Royal Asylum. The large number of rate-paid patients at present in the asylum excluded, as had been often pointed out, the poorer class of patients not dependent on parochial relief, for whom the West House was primarily intended. It was interesting to note that there had been 22 voluntary patients under treatment in the asylum during the year under the provisions of the Lunacy Act of 1862.

The ordinary revenue for the year had been £60,089 10*s.* 5*d.* and the ordinary expenditure £55,075 3*s.* The gross surplus revenue was thus £5014 7*s.* 5*d.* Deducting from this £1909 18*s.* 8*d.*, the annual instalment towards liquidation of the debt on the West House, there remained a free surplus of £3104 8*s.* 9*d.* Of that surplus £2300 9*s.* 4*d.* were derived from Craig House, £42 2*s.* 7*d.* from intermediate patients, and £761 16*s.* 10*d.* from pauper patients. The cost of maintenance per head in Craig House was £131 1*s.* 7*d.*, nearly £6 more than in the previous year. This rise was due partly to an increase in the number of patients paying high rates of board, and consequently demanding more expensive diet and more attention, and partly to the expenditure of £850 for the renewing of the cooking apparatus as well as £408 10*s.* 8*d.* for the purchase of accumulators in connexion with the electric battery. The cost of maintenance per head of the intermediate patients had been £41 10*s.* 7½*d.*, rather less than the amount for the previous year. The cost of maintenance per head of pauper patients had fallen to £31 15*s.* 8½*d.*, as compared with £33 2*s.* 4*d.* in 1901. This decrease was due to a fall in the cost of provisions, fuel, furnishings, and repairs. The managers proposed to reduce the rate of board for patients paying the lowest rate and for pauper patients to £32, or £30 exclusive of clothing.

During the year the debt on Craig House and the West House had been reduced by £5010 14*s.* 8*d.* 34 patients had

been relieved during the year from the ordinary income of the charity fund and 31 patients had been relieved by the Bevan Trust fund.

In the absence of Dr. T. S. Clouston through indisposition the report of the physician-superintendent was read by Dr. J. M. Rutherford, Dr. Clouston's principal assistant. The total number of patients under treatment during the year had been 1385. There had been 423 admissions, of whom 189 were men and 234 were women. The number of patients discharged had been 297, of whom 130 were men and 167 were women. There had been 138 deaths, of whom 73 were men and 65 were women. The number of rate-paid patients admitted was 358, which was eight more than the average of the past five years. In consequence of the large number of pauper patients sent in, the wards of the West House had been in a chronic condition of overcrowding such as he (Dr. Clouston) had never before experienced. It was a state of matters which was bad for the discipline and quiet of the wards, as well as for the health of the patients.

As to the cause of insanity in the cases admitted no fewer than 119 cases, or 28 per cent. of the admissions, were put down as due to intemperance in the use of alcohol. This was the highest number that had ever been sent there from that cause. Of the 423 admissions 56, or 13 per cent., were cases of general paralysis. This was, with the exception of last year, the largest number of cases of this disease that had ever been sent in and this confirmed his remarks in his last year's report as to the distinct increase of this disease in this district. Their admission-rate in this disease was now the highest in Scotland. Of the 297 patients discharged 134 were recovered. One-third of the admissions were incurable from the beginning, being cases of advanced senility and gross brain lesions. The number of deaths had been the largest that had ever occurred in the institution and the death-rate was also somewhat larger than they had ever experienced. The causes of the high mortality were (1) the large number of cases of general paralysis, organic brain diseases, senility, and general weakness; (2) the overcrowding of the wards; and (3) an outbreak of asylum dysentery or colitis. This epidemic occurred among the female patients. There were 27 cases in all with seven deaths. Only three of the patients attacked were, however, in fair bodily health at the time, 18 of the cases having occurred in the female hospital of the West House and six in No. 1 female ward where the patients were of a class weak in body.

The drainage system of the West House had been thoroughly renovated four years ago, but part of the old system had at that time been left for the purpose of draining some deep cellars. After the epidemic of dysentery began it was found that some of those old drains had not been properly disconnected from the building and were undoubtedly dangerous. Two of the cats in the ward had contracted the disease and had possibly acted as carriers of infection. When this was discovered the cat life of the institution came to an abrupt termination. Dr. Clouston, in concluding his report, referred to the treatment of incipient cases of insanity in the wards of a general hospital. He believed that it would be a humane and perfectly practical proceeding if such a step were taken by the Royal Infirmary.

THE PREVENTION OF CONSUMPTION AND OTHER FORMS OF TUBERCULOSIS.

CORK.

As already mentioned in detail by our Cork correspondent in THE LANCET of March 7th, p. 690, the preliminary steps have been taken for the formation in that city of a branch of the National Association for the Prevention of Consumption and other Forms of Tuberculosis. The meeting convened for the purpose was attended by a number of influential persons, the Church, the medical profession, the county families, and various public bodies being represented.

WINSLEY SANATORIUM.

Progress is being made with the scheme for the erection of a sanatorium at Winsley, near Bath, for the counties of Wilts, Somerset, and Gloucester. The site, on high ground overlooking the Avon valley, has been levelled and tenders are being invited for the erection of the buildings. Liberal contributions to the fund that is being raised have been received from the men employed at the locomotive works of the Great Western Railway Company at Swindon, as well as from the Trowbridge Coöperative Society. Up to the present time £9607 have been subscribed towards the fund. Of this sum £3649 have been expended on the purchase of 50 acres of land, levelling the site for building, and other preliminaries. The maintenance of 12 beds is already provided for—four by the corporation of Bristol, two by Bath and Swindon respectively, and one each by Gloucester, by Mr. J. Clark, by Mr. and Mrs. W. Clark, and by Messrs. Fry and Sons. The first part of the building to be erected includes the administrative block for the institution and 20 beds. The cost of this will be about £6500. The completed scheme will be for 60 beds at an estimated cost of £20,000, while £4000 will be required for maintenance.

A PROPOSED SANATORIUM FOR EMPLOYÉS OF THE GENERAL POST OFFICE.

At the conference of the Postal Telegraph Clerks' Association held in Leeds on March 7th a motion was adopted appointing a committee to investigate the means of providing sanatorium accommodation for postal employés. In the course of proposing the motion Mr. C. H. Garland (London) said that the Post Office established staff in 1899 was 82,172 and there were 62 deaths and 83 retirements caused by consumption, a total loss of 145 persons. The total staff at present numbered over 179,000 and there was no reason to suppose that the rate of loss was less among the unestablished staff than among the established, so that it might be reckoned that from 300 to 350 persons per year fell victims to the disease. The indoor staff was almost certainly the staff that suffered most, the loss being at least 2 per 1000 per annum. Mr. Garland then quoted at some length medical opinions as to the advantages of sanatorium treatment, making reference also to the "Report of the Association of British Postal Medical Officers on the Prevalence of Tubercle among the Employés of the Post Office during the year ending Dec. 31st, 1900." He then continued as follows:—

> The cases of superannuation and death from consumption show that nearly two of every 1000 employés suffer seriously from this disease each year. It is usual to reckon about ten times the number of deaths in order to arrive at the number of the sick, but I believe such an estimate would be much too high in the Post Office and it will be sufficient for our purpose to suppose that among the indoor staff about 4 per 1000 require treatment each year. The last Postmaster-General's report showed that the number in class H, or "Counter Clerks and Telegraphists, Sorters, Sorting Clerks and Telegraphists, and Telegraphists" was 30,330. Among this body we can assume then that some 120 persons require treatment each year. Each bed in a sanatorium would supply treatment for three or perhaps four patients each year. Let us suppose only three, and to treat 120 persons we should require 40 beds. It is estimated that the cost of erection per bed is £200, so we can reckon that we want roughly £8000 for erection. The cost of maintenance would not exceed £65 per bed per annum. This would provide medical attendance, nursing, food, and medicine at no expense to the patient. So that our financial requirements would be an initial outlay of £8000 and a yearly income of £2600. How are we to get this? If 30,000 persons consented to have 1d. a week stopped from their salaries it would provide £125 weekly or £6505 per year. So that if we could get the indoor staff to subscribe 1d. per week for 64 weeks, or about 15 months, we should have our £8000 for erection, and if they would then continue to subscribe a halfpenny per week it would yield about £3250 per year for maintenance.

In conclusion, Mr. Garland said that he felt certain that no more than a very small percentage of the officials concerned would refuse to subscribe to such an object and that no serious difficulties would be encountered in collecting the subscriptions.

MEDICINE AND THE LAW.

Private Bills affecting the Medical Profession.

AT this early period of the Parliamentary session there are already several Bills printed and awaiting the opportunity for their further introduction to the House of Commons which directly or indirectly affect the medical profession or some branch of it. Some of these appear for the first time and some do not. Private members' Bills, it is well known, do not form a large proportion of the legislative output of the year owing to various causes which need not be gone into, but it is well that their provisions should be known to those whom they concern. Assistance may thus be obtained for useful proposals, the introducers of which can hardly be sorry to receive the support of expert opinion outside the House, and improvements or modifications may be suggested in matters of detail by those best qualified to express

opinions. On the other hand, attention may be called to suggested measures which are likely to prove futile or obnoxious and their failure to become law may thus be rendered more certain.

Medical Acts Amendment Bill.

The private members' Bill before the House of Commons which is of most importance in that it concerns the medical profession more or less as a whole is introduced by Sir John Batty Tuke, while it further bears the names of Sir John Gorst, Mr. James Campbell, Sir Richard Jebb, Mr. Talbot, and Sir Michael Foster. Its principal objects are to give the General Medical Council power to erase from the Medical Register for a limited period the name of a registered practitioner who has been guilty of a crime or who has been adjudged guilty of infamous conduct in a professional respect, and to enable the medical authorities—that is to say, the universities and other bodies entitled to grant medical diplomas—summarily to deprive a practitioner whose name has been erased from the Medical Register of the medical diploma obtained from that authority. A third provision orders that, notwithstanding the provisions of any Act in force or hereafter to be passed, all fines and penalties recovered under the Medical Acts or the Dentists Act, 1878, shall go to the General Medical Council to be applied in aid of the expenses incurred by the Council in putting into force the Medical Acts. The changes proposed to be made require but little comment or commendation. At present the General Medical Council can inflict but one penalty, the erasure of the name of the person brought before it from the Medical Register. The power to modify and to regulate the penalty to be imposed is a highly desirable one for any punitive body to possess, for many reasons. One of these is that where the necessary penalty is not one of extreme severity offences are more likely to be complained of and punished than where the accusation, if successful, must necessarily involve the professional ruin of the accused. The second proposed change enables the bodies which grant medical diplomas to withdraw them subject to their possible future restoration where the General Medical Council has exercised its powers of removal from the Register; this power to withdraw diplomas is not now possessed by all the bodies which may grant them. The third proposed change is due to the fact that in London the penalties referred to are claimed by the Receiver of Police under the Metropolitan Police Courts Act, 1839.

A Public Health Bill.

The full title proposed for this measure is "The Public Health (Officers' Tenure of Office and Superannuation) Act of 1903." It is introduced by Sir Francis Sharp Powell and is supported by Sir Walter Foster, Mr. Talbot, Dr. Farquharson, Mr. Henry Hobhouse, Mr. Cripps, Mr. Heywood Johnstone, Sir Michael Foster, and Sir John Batty Tuke. Its main objects are to insure that none but those properly qualified shall be employed as officers of health (a definition in which are included medical officers of health, sanitary inspectors, and inspectors of nuisances); to give to these as far as is reasonable security of tenure in their offices; and to enable them by definite contributions proportionate to their salaries, paid to a central fund, to provide for themselves superannuation allowances to assist them in the event of old age or disablement. The memorandum prefixed to the Bill calls attention to the highly technical duties performed by sanitary inspectors and points out that as the law stands urban and rural sanitary authorities may appoint officers of health on such conditions as to qualifications, tenure of office, and other matters as they deem fit. The body of the Bill would enact that no person should be appointed an officer of health unless he either is the holder of a certificate of the Local Government Board or of some body for the time being approved by that Board, gained by examination, or unless he has for three years before the passing of the Act served as an officer of health. This portion of the Bill is, no doubt, to a large extent designed to obtain the appointment of competent sanitary inspectors, the qualifications of these for their posts being less easy to appreciate in existing circumstances than those of medical men who offer themselves for the posts of medical officers of health. It also proposes to do away with the term "inspector of nuisances," substituting for it the more euphonious one of "sanitary inspector." Conditions of superannuation are proposed, followed by a scale of superannuation allowances. These range from fifteen-sixtieths of the average annual salary of the last five years of service, payable after a service of ten years, to forty-sixtieths, a maximum only to be obtained after 35 years' service. The proposed deductions from salary as contributions towards these allowances are graded from 2 to 3 per cent. according to the time of service. Contribution by those already holding office is to be according to choice and various matters of detail, financial and otherwise, are considered in various sections devoted to them. Enough has been said to show that the measure is one of considerable importance to the two classes directly affected by it.

An Anti-Vaccination Bill.

A brief Bill, containing but one operative section, would order that "a vaccination officer shall not take proceedings against a parent or other person under section 29 or section 31 of the Vaccination Act, 1867, except with the express sanction and authority in each case of the guardians of the union or parish for which he acts." This attempt to repeal the Vaccination Acts locally at the option of a more or less uneducated majority of the enfranchised population embodies the present ambitions of the anti-vaccinationist, as already shown in a succession of defences to prosecutions and subsequent appeals. It is, perhaps, not likely to receive the serious consideration of the House of Commons, and it is to be hoped that if it does its rejection will be decisive. It is introduced by Mr. Channing and is supported by Sir John Rolleston, Mr. Goddard, Mr. Cremer, Mr. Brigg, Mr. Broadhurst, Mr. Corrie Grant, and Mr. Bell.

An Anti-Vivisection Bill.

This Bill seeks to amend 39 & 40 Vict. c. 77, the statute which already regulates and controls the performance of experiments upon live animals. Its main object appears to be the abolition of the existing provisions for the performance of certain experiments under certificates, which without such certificates are not permissible. Those especially aimed at are no doubt those in which it may be desired to dispense with the administration of an anæsthetic. There is also in the Bill a section ordering that "there shall be present during and throughout the whole course of the experiment an inspector," "and no such experiment shall at any time be performed or continued save in the presence of such inspector as aforesaid." Power is given to the Secretary of State to appoint a sufficient number of inspectors for this purpose. Their duties would, however, obviously be such as only highly qualified members of the medical profession could adequately perform and the questions to be decided by them are now safely left in the hands of the highly qualified members of the medical profession whose experiments at times under the existing Act lawfully include those upon live animals. These experiments are already subject to conditions with regard to inspection and other matters, the stringency of which, it is proposed, should be increased in other directions besides those to which we have called attention. Members of Parliament who have considered the existing Act and are acquainted with the statistics relating to its subject matter will for the most part be satisfied that the protection which it affords to dumb animals is sufficient without the additional restrictions proposed in a Bill which is brought in by Sir Frederick Banbury, Colonel Lockwood, and Mr. MacNeill.

MEETING OF PUBLIC VACCINATORS AT PLYMOUTH.

A MEETING was held in the room of the Plymouth Medical Society on Feb. 28th to elect a district council from among the public vaccinators of South Devon and North and East Cornwall (including members and non-members of the Association of Public Vaccinators of England and Wales). Mr. G. Jackson of Plymouth presided. The following resolutions were adopted unanimously:—

1. This resolution referred to the constituting of a district council.
2. That the Local Government Board should be the authority to which the administration of vaccination should be intrusted.
3. That failing the entire transference of administration from boards of guardians to the Local Government Board it is absolutely necessary in the public interests that the public vaccinator should be as independent in position as the vaccination officer.
4. That the minimum fees cannot be fairly reduced, and in many country districts they are inadequate on account of the distance to be

coverer, and that an additional minimum fee of 1s. per mile should be paid for each journey over two miles for each mile or part of a mile.

5, 6, and 7. These resolved that school children should all be compelled to produce a certificate of successful vaccination; that there should be compulsory revaccination between the ages of 10 and 14 years; and that "successful" vaccination should be defined in any future legislation.

8. That in the public interests all the institutions for the provision of calf vaccine in this country should be open to Government inspection and that no imported lymph should be used from any institution which is not recognised by the English Government.

9. That there should be a Government vaccination station for the supply of lymph in all numerous centres of population.

10. That "efficient" vaccination should be defined as at present fixed by the Local Government Board as four insertions and half a square inch of cicatrix, and that the number of insertions and successful pustules be named in the certificate and registered by the vaccination officer.

11. That every medical practitioner not acting as public vaccinator who forwards a certificate to the vaccination officer of any efficient vaccination be paid a fee for the certificate, provided that such certificate states the number of insertions and successful pustules, and that such fee should not interfere with that charged for the operation.

Public Health and Poor Law.

LOCAL GOVERNMENT BOARD.

REPORTS OF INSPECTORS OF THE MEDICAL DEPARTMENT OF THE LOCAL GOVERNMENT BOARD.

On Epidemic Small-pox in the Union of Orsett, 1901-02, by Dr. G. S. BUCHANAN.[1]—The Union of Orsett, which has a population of some 33,000, is situated in South Essex and extends from west to east about 14 miles and from north to south about seven miles the Thames forming its southern boundary throughout. The most populous portions of the union are the riverside neighbourhoods between Purfleet on the west and Tilbury on the east. The town of Grays lies midway between Purfleet and Tilbury and forms the Grays urban district; the rest of the union is comprised in the Orsett rural district. During the ten months from September, 1901, to June, 1902, small-pox appeared in 12 out of 17 parishes in Orsett rural district, the attacks per 1000 of the population in those parishes being 18·5; while in Grays urban district 16 per 1000 of the population suffered from the disease. The epidemic was thus of great severity. It may be contrasted with the London borough of Holborn which suffered most heavily during the recent outbreak in the metropolis, where the attacks of small-pox per 1000 during 11 months ending June, 1902, were no more than 7·2. Dr. Buchanan gives tables showing the incidence of small-pox week by week on the population and on dwellings in various subdivisions of the union. The epidemic had its beginning (from September to November, 1901) among the small community of Purfleet and in persons living elsewhere in the union where the attacks could be referred to infection from others who had contracted infection at Purfleet. From the middle of November, 1901, onwards the disease became prevalent over the whole of the southern portion of the union, its incidence being especially severe upon the villages of West Thurrock and South Stifford, which lie between Purfleet and Grays, and upon the parish of Aveley which adjoins Purfleet on the north. The report deals in detail with the condition of the population of the union at the beginning of the epidemic in regard to vaccination. Since 1891 neglect of infantile vaccination had increased and from 1895 to 1900 more than one-third of the children whose births were registered had not been vaccinated. With the exception of certain special communities (which entirely escaped small-pox) comparatively few persons of ten years of age or upwards were already revaccinated when the epidemic began. Having regard to the large number of unvaccinated children, it was fortunate that no instances occurred of the spread of small-pox in schools such as happened in Gloucester in 1896. Nevertheless, it is noteworthy that out of a total of 519 cases admitted to the local small-pox hospital no fewer than 100 were unvaccinated children under the age of ten years and that 22 of these children died. During the same period only ten vaccinated children under the age of ten years were admitted, each suffering from discrete small-pox, and no death occurred among them. An instructive table prepared from data obtained by Mr. Rea Corbet shows with regard to adults that the fatality from small-pox in the unvaccinated was much greater than in the primarily vaccinated and this, not only at ages from 10 to 25 years (unvaccinated rate 14·3 per 100, primarily vaccinated rate 3·9), but also at ages over 25 years. 18 cases were admitted in which revaccination was stated to have been successfully performed at some period or other before infection by small-pox. In four cases this period was less than ten years, in one instance no more than six years. The progress of the epidemic caused a complete change in the attitude of the majority of the population towards vaccination. By March, 1902, as many as 6763 persons had been recently revaccinated and many children over one year had been recently vaccinated by the public vaccinators, while a large amount of revaccination and vaccination was performed by medical practitioners who were not public vaccinators. No case of small-pox occurred among persons recently revaccinated save those who were already incubating small-pox at the date of revaccination. The most striking facts of the epidemic, however, were the severe and long-continued prevalence of small-pox in Purfleet and the evidence obtained which referred small-pox in other parts of the union to infection contracted in Purfleet. In this village throughout the epidemic cases kept on occurring week after week and month after month; altogether 41 out of the 110 dwellings in the place were affected. During the whole epidemic period in Purfleet and elsewhere there was no failure in the arrangements for isolation, cases of small-pox being removed within 24 hours of notification; "contacts" were kept under observation: and disinfection, on the whole, was satisfactory. There was little or no evidence that small-pox in Purfleet was maintained by undetected cases or by supposed chicken-pox. Moreover, revaccination in Purfleet was freely resorted to. On a liberal estimate those inhabitants who at the end of March, 1902, were not vaccinated children, revaccinated or recently vaccinated adults, or persons who had suffered from small-pox did not exceed 40. Nevertheless, cases of small-pox subsequently occurred among these 40, while other later cases in Purfleet were persons newly arrived in the place. These considerations, along with a number of others in the report which space does not allow us to summarise, are important in their bearing on the question of the convection of small-pox infection from the Metropolitan Asylums Board's small-pox hospital ships which are moored in the Thames off the Kent shore, opposite Purfleet, from which they are separated by nearly half a mile of water. There was no personal communication between the ships and Purfleet throughout the epidemic and in considering the influence of the ships, as Dr. Buchanan puts it, "we have to choose between aerial convection or nothing."

As to the latter alternative I would say at once that if the presence of the small-pox ships in Long Reach had no concern with the Purfleet epidemic, then, while making every allowance for opportunities of local spread of the disease, I am nevertheless quite unable to suggest any reason for the extraordinarily heavy and long-sustained prevalence of small-pox there. If, on the other hand, the ships did exert influence on the epidemic, infective particles being from time to time, under favouring meteorological conditions, conveyed to the area of Purfleet and there reinforcing small-pox already prevalent, or setting small-pox going anew, then not only is the Purfleet experience intelligible, but the hypothesis invoked to explain it is one that has been shown to be necessary, in our present knowledge, if the characteristic peculiarities in the distribution of small-pox in the neighbourhood of small-pox hospitals are to receive anything approaching a sufficient explanation.

Those who are interested in the question will note with interest the abundance of circumstantial evidence given in the report that the ships were responsible for disseminating infection in their neighbourhood in the way in which the London hospitals of the Metropolitan Asylums Board used to do when they received acute cases of small-pox. Instances were traced, for example, in which members of the crew of vessels moored for a while in Long Reach sickened with small-pox about 12 days afterwards. It is, of course, impossible to test the matter in this case by looking for graduated intensity of incidence of small-pox in dwellings near the hospital ships; there are, practically speaking, no dwellings within a mile of the ships save those in Purfleet and the Dartford marshes to the south of the ships are uninhabited. But during the period under consideration large numbers of workmen were employed opposite the ships on the Kent shore in the erection of temporary buildings and among these men cases of small-pox occurred almost by the score. Unlike the inhabitants of Purfleet these men may have had opportunities of "mediate" infection by association undetected by the authorities with members of the

[1] London: Eyre and Spottiswoode, East Harding-street; Edinburgh Oliver and Boyd; Dublin: E. Ponsonby. Price 1s. 6d.

ships' staffs who had not changed their clothing or otherwise had failed to carry out the hospital rules as to disinfection. But the presumption that the bulk of the small-pox among these workmen was attributable to aerial convection is very strong. Dr. Buchanan quotes also the instructive figures which Dr. J. C. Thresh prepared for the Epidemiological Society on the incidence of small-pox in the Orsett Union in previous years and which show that since the ships began to take acute cases of small-pox in 1894 the place where small-pox has again and again made its first appearance has been Purfleet or neighbouring portions of the parish of West Thurrock. It will be remembered that Dr. Thresh[2] when dealing with data obtained during the earlier periods of this epidemic gave reasons for inferring that infection conveyed aerially from the ships was responsible in considerable measure for the prevalence of small-pox not only in Purfleet but also in parts of the Orsett Union distant from two to five miles in a direct line from the ships and that the incidence of the disease might be related to the direction of the prevalent winds. Dr. Buchanan discusses this question in some detail and arrives at the conclusion that the evidence of the conveyance of infection to such distances is hardly sufficient in view of the impossibility of eliminating the factor of personal communication and traffic between Purfleet and other parts of the union. He points out that on theoretical grounds it is easier to realise the operation of aerial convection on still foggy days, when the large volume of warm air derived from the wards, accompanied by suspended particulate matter, rises steadily upwards from the ships and the particulate matter thus conveyed gets wafted by gentle air currents without much dispersion, "ultimately to settle now, for example, on Purfleet, now on the Dartford marshes, at one time towards Erith, and at another on the surface of the river. A moderate or strong wind, on the other hand, ought to be expected to cause rapid dispersion and removal of particulate matter rising from the ships." The report is illustrated by maps and contains appendices giving notes regarding the prevalence of small-pox in the Dartford Union and meteorological data.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8693 births and 4790 deaths were registered during the week ending March 7th. The annual rate of mortality in these towns, which had been 17·1, 16·7, and 16·6 per 1000 in the three preceding weeks, was again 16·6 per 1000 last week. In London the death-rate was 16·4 per 1000, while it averaged 16·6 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 6·3 in Handsworth, 6·7 in Newport (Mon.), 8·1 in Wallasey, 8·8 in Barrow-in-Furness, 9·3 in Northampton, 9·8 in Smethwick, 10·0 in Hornsey, and 10·1 in Great Yarmouth and in Burton-on-Trent; the highest rates were 20·1 in Wigan and in Rotherham, 21·8 in Tynemouth, 22·1 in Newcastle-on-Tyne, 23·0 in Manchester, 24·2 in Preston, 25·7 in Swansea, and 27·5 in Coventry. The 4790 deaths in these towns last week included 501 which were referred to the principal infectious diseases, against 452 in each of the three preceding weeks; of these 501 deaths 142 resulted from measles, 142 from whooping-cough, 77 from diphtheria, 52 from scarlet fever, 42 from diarrhœa, 30 from "fever" (principally enteric), and 16 from small-pox. No death from any of these diseases was registered last week in Brighton, Ipswich, Norwich, Burton-on-Trent, Walsall, Handsworth, King's Norton, Barrow-in-Furness, Rotherham, or Newport (Mon.); among the other towns the highest death-rates from the principal infectious diseases were recorded in West Ham, Hanley, West Bromwich, Wigan, Bolton, Salford, Tynemouth, and Swansea. The greatest proportional mortality from measles occurred in Nottingham, Wigan, Bolton, Manchester, and Swansea; from scarlet fever in Great Yarmouth; from diphtheria in West Ham, Bristol, Hanley, Coventry, Salford, Huddersfield, and Bradford; from whooping-cough in Croydon, East Ham, Hanley, Oldham, and Preston; and from diarrhœa in St. Helens. The mortality from "fever" showed no marked excess in any of the large towns. Six fatal cases of small-pox were registered in Liverpool, two in London, two in Birmingham, and one each in Leicester, Bootle, Bury, Oldham, Leeds, and Cardiff, but not one in any other of the 76 large towns. The number of small-pox patients under treatment in the Metropolitan Asylums hospitals, which had been six, eight, and five on the three preceding Saturdays, had risen again to six on Saturday, March 7th; two new cases were admitted during the week, against one, seven, and one in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, which had declined from 2528 to 1851 at the end of the ten preceding weeks, had further decreased to 1791 at the end of last week; 194 new cases were admitted during the week, against 246, 205, and 197 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 267, 274, and 271 in the three preceding weeks, further declined last week to 251, and were 316 below the corrected average number. Influenza was stated to be the primary cause of 31 deaths in London last week, against 24, 25, and 15 in the three preceding weeks. The causes of 49, or 1·0 per cent., of the deaths in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Leicester, Salford, Leeds, and in 45 other smaller towns; the largest proportions of uncertified deaths were registered in Reading, Liverpool, St. Helens, Blackburn, Sunderland, and South Shields.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had declined from 21·7 to 17·7 per 1000 in the four preceding weeks, rose again to 18·5 per 1000 during the week ending March 7th, and was 1·0 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in these eight Scotch towns ranged from 13·2 in Paisley and 16·8 in Glasgow to 21·4 in Dundee and 22·1 in Edinburgh. The 606 deaths in these towns included 32 from whooping-cough, 21 from diarrhœa, 15 from measles, four from scarlet fever, two from "fever," and one from diphtheria, but not one from small-pox. In all, 75 deaths resulted from these principal infectious diseases last week, against 85, 76, and 59 in the three preceding weeks. These 75 deaths were equal to an annual rate of 2·3 per 1000, which was 0·6 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of whooping-cough, which had been 32, 26, and 23 in the three preceding weeks, rose again last week to 32, of which 18 occurred in Glasgow, five in Dundee, four in Edinburgh, and four in Leith. The deaths from diarrhœa, which had been 18 and 13 in the two preceding weeks, increased again to 21 last week, and included 10 in Glasgow, four in Edinburgh, four in Paisley, and two in Aberdeen. The fatal cases of measles, which had declined from 20 to nine in the preceding weeks, rose again last week to 15, of which seven were registered in Aberdeen, three in Glasgow, three in Edinburgh, and two in Leith. The deaths from scarlet fever, which had been eight, seven, and five in the three preceding weeks, further declined to four last week and included two in Glasgow and two in Edinburgh. The deaths referred to diseases of the respiratory organs in these towns, which had declined from 183 to 92 in the six preceding weeks, rose again last week to 97, but were 133 below the number in the corresponding period of last year. The causes of 35, or nearly 6 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 25·0, 20·6, and 25·9 per 1000 in the three preceding weeks, further rose to 27·8 per 1000 during the week ending March 7th. During the past four weeks the death-rate has averaged 24·8 per 1000, the rates during the same period being 16·8 both in London and in Edinburgh. The 202 deaths of persons belonging to Dublin registered during the week under notice showed an increase of 14 over the number in the preceding week and included nine which were referred to the principal infectious diseases, against 14, 18, and 14 in the three preceding weeks; of these, three resulted from whooping-cough, two from diarrhœa, and one each from measles, scarlet fever, diphtheria, and "fever." These nine deaths were equal to an annual rate of 1·2 per 1000, the death-rates last week from the same diseases being 2·0 in London and 2·1 in Edinburgh. The deaths from whooping-cough, which had

[2] THE LANCET, Feb. 22nd, 1902, p. 486, and April 26th, 1902, p. 1172.

been three, three, and five in the three preceding weeks, declined again last week to three. The fatal cases of diarrhœa, which had been four, one, and four in the three preceding weeks, decreased again to two last week. The 202 deaths in Dublin last week included 34 of children under one year of age and 59 of persons aged 60 years and upwards; the deaths of infants showed a slight excess over the number in the preceding week, while those of elderly persons showed a considerable increase. Six inquest cases and six deaths from violence were registered; and 76, or more than a third, of the deaths occurred in public institutions. The causes of 18, or nearly 9 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

Staff Surgeon Bassett Charles Edward Fitzgerald Gunn has been promoted to the rank of Fleet Surgeon in His Majesty's Fleet. Dated Feb. 26th, 1903.

The following appointments are notified:—Staff Surgeon E. A. Penfold to the *President*, additional, for three months' course of hospital study. Surgeons: W. R. Harrison to the *Boscawen* for the *Wanderer*; J. G. Peebles to the *Boscawen* for the *Dolphin*; W. G. Edwards to the *Boscawen* for the *Seaflower*; F. E. Bolton to the *St. Vincent* for the *Martin*; S. S. H. Shannon to the *Impregnable* for the *Nautilus*; R. L. Jones to the *Impregnable* for the *Pilot*; R. H. Atkins to the *Lion* for the *Liberty*, all lent for cruising season; E. T. P. Eames to the *Torch*, and on recommissioning; and T. W. Miles to the *Jupiter*.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel E. H. Fenn, C.E.I., from the Seconded List, to be Lieutenant-Colonel. Dated Feb. 19th, 1903.

The undermentioned Lieutenants are confirmed in that rank:—A. B. Smallman, W. F. Tyndale, C.M.G., P. Davidson, D.S.O., W. F. Ellis (on probation), J. McKenzie, W. B. Taylor, H. D. Walker, A. H. Hayes, H. J. Crossley, R. B. Ainsworth, C. A. J. A. Balck, R. Storrs, R. L. V. Foster, F. A. H. Clarke, G. A. K. H. Reed, G. W. Smith, J. W. S. Seccombe, J. M. H. Conway, S. M. W. Meadows, H. V. Bagshawe, D. S. Skelton, C. N. B. Stanley, H. G. S. Webb, W. W. Browne, F. L. Henderson (on probation), R. Rutherford, W. D. C. Kelly, N. E. J. Harding, W. C. Rivers, and R. J. Franklin.

INDIAN MEDICAL SERVICE.

The King has approved of the following appointments:—To be Colonel, Bengal Establishment: Lieutenant-Colonel Henry Hamilton. Dated Oct. 1st, 1902. This cancels the notification of this officer's promotion made in the *London Gazette* of Jan. 16th, 1903. Bombay Establishment: Lieutenant-Colonel Arthur Henry Cole Dane. Dated Oct. 30th, 1902. To be Lieutenants (dated Sept. 1st, 1902): John Hanna Murray, Frederic Percival Mackie, Arthur Tregelles Pridham, John O'Leary, Samuel Rickard Christophers, Harry Emslie-Smith, Hugh Reginald Dutton, Vincent Blumhardt Nesfield, Henry Martyn Brown, Francis Peter Vieyra, Arthur Frederick Pilkington, Philip George Easton, Wilfrid Wynne Jeudwine, Thomas Charles McCombie Young, George Adam Jolly, Henry Coddington Brown, Abdurrahman Khan Lauddie, Walter Julius Collinson, Cuthbert Lindsay Dunn, Herbert Michael Henry Melhuish, Horace Harvard Kiddle, Richard Francis Chetwynd Talbot, Raghuber Dayal Saigol, Cecil Edward Bulteel, John Lumsden Lunham, Frederick Collen Rogers, Maung Ba-Ket, George Frederick Humphreys, and Clayton Alexander Francis Hingston.

The King has also approved of the retirement from the service of the undermentioned officers:—Lieutenant-Colonel Maneckjee Eduljee Reporter, Madras Establishment. Dated Nov. 27th, 1902. Lieutenant-Colonel Alexander William Mackenzie, Bengal Establishment. Dated Jan. 31st, 1903.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Captain Henry Waite, 2nd West Riding of Yorkshire Royal Engineers (Volunteers), to be Surgeon-Captain. Dated March 11th, 1903.

VOLUNTEER CORPS.

Rifle: 1st Volunteer Battalion the Royal Scots Fusiliers: Supernumerary Surgeon-Lieutenant J. C. Taylor, from the 9th Lanarkshire Volunteer Rifle Corps, to be Surgeon-Lieutenant. Dated March 7th, 1903. 4th (Nottinghamshire) Volunteer Battalion the Sherwood Foresters (Nottinghamshire and Derbyshire Regiment): Arthur John Helm Montague to be Surgeon-Lieutenant. Dated March 7th, 1903. 1st Volunteer Battalion the King's Own (Yorkshire Light Infantry): George Symers Mill to be Surgeon-Lieutenant. Dated March 7th, 1903. 21st Middlesex (the Finsbury): Charles Allen Casterton Smelt to be Surgeon-Lieutenant. Dated Feb. 24th, 1903. 1st (Hallamshire) Volunteer Battalion the York and Lancaster Regiment: Captain D. G. Newton, from the South Yorkshire Volunteer Infantry Brigade Bearer Company, to be Surgeon-Captain. Dated March 7th, 1903.

VOLUNTEER INFANTRY BRIGADE BEARER COMPANY.

Welsh: Evelyn John Robert Evatt to be Surgeon-Lieutenant. Dated March 7th, 1903.

CHURCH LADS' BRIGADE MEDICAL CORPS.

We have received a new and enlarged edition of the manual for the Church Lads' Brigade Medical Corps published at the headquarters of the brigade, 13, Craven-street, Charing Cross, London, W.C. The manual is based upon the manual of the Medical Staff Corps and contains a brief outline of the structure and functions of the human body and its organs and instruction for first-aid to the injured. Special attention has been given to drill which has been brought into line with the present army medical regulations and it is suggested that the manual will be found of value to cadet corps, schools, and similar organisations where military drill and ambulance teaching are utilised. The section dealing with poisoning is short and to the point, but we cannot entirely indorse the "Table of Special Poisons and their Treatment." The class for whom the manual is written will rarely, if ever, meet with cases of poisoning from several of the poisons there specified, while, on the other hand, all reference to food poisoning is omitted. Emetics are recommended in the table in cases of carbolic acid poisoning, without any reference being made to the anæsthetic or corrosive actions of that substance. On the other hand, on p. 59 carbolic acid is classed with the corrosive poisons and emetics are forbidden.

THE REFORM OF THE ARMY MEDICAL DEPARTMENT.

In the course of his statement in the House of Commons on army reform on March 10th Mr. Brodrick said that the present year had been a notable one in the reorganisation of the Army Medical Corps. He believed that the House of Commons owed a large measure of gratitude to those eminent civilian surgeons and medical men who had joined, on public grounds, the Advisory Board. Sir Frederick Treves, Bart., K.C.V.O., C.B., Mr. A. D. Fripp, C.V.O., C.B., Dr. E. C. Perry, Dr. J. Galloway, Sir Charles B. Ball, and others, had given immense time to the public service. While previously a sufficient number of candidates to fill vacancies could not be obtained at the first examination under the new system there were three times as many candidates as vacancies—the class of candidates being of a very high order. A medical staff college had been established in London which would enable officers returning from foreign service to utilise to the best advantage that leave for study which they have never had hitherto and without which it was impossible to keep up their scientific attainments. Specialisation in the Army Medical Service would be encouraged and everything would be done to bring the medical and surgical equipment of the army up to date.

DEATHS IN THE SERVICES.

Surgeon-Major Vere Edward Hunter, R.A.M.C., at Bombay, on March 2nd. He entered the Army Medical Department in 1883 and was promoted to the rank of surgeon-major in 1895. He served for some years in Burma, where he joined the army on field service in 1887-88.

THE TORQUAY WATER-SUPPLY.—Referring to the leading article on Moorland Waters and Lead Poisoning, published in THE LANCET of Feb. 28th, p. 596, Mr. J. Bentall Endean writes to us from Torquay on the subject of the water-supply of that town. He says that the Torquay corporation supplies water to more than 45,000 consumers, that this water is derived from moorland gathering grounds including peat and bog, that it is "peaty," and that all of it is delivered to the consumers without filtration. He is doubtful as to the wholesomeness of this water and calls attention to the prevalence of ulcer of the stomach, anæmia, and cancer, mentioning that out of a total of 504 deaths in Torquay in 1901 there were 44 due to cancer.

Correspondence.

"Audi alteram partem."

THE MEDICAL MAN, THE CORONER, AND THE PATHOLOGIST.

To the Editors of THE LANCET.

SIRS,—The crux of the matter is, What are the circumstances requiring a specialist and who is to decide when he is to be employed? I must confess that I thoroughly distrust the seeming concession of the London County Council. Their original idea was that there were too many inquests and that the sum paid was excessive, and that by removing what they considered the principal motive for which medical men refused certificates—namely, the fee—they would effect an economy of some £20,000; and it was to carry out this policy that Mr. Troutbeck was appointed. The fee to be paid to Dr. Freyberger was to be two guineas and we are asked to believe that the local man will be called to give evidence as to facts and so swell the cost to three guineas for the medical evidence. I do not believe it for a moment: the whole thing is a red herring drawn across the trail; and in support of what I say I inclose a statement of the post-mortem examinations held in the Battersea mortuary since Nov. 22nd, which speaks for itself. You will observe that more post-mortem examinations have been given to Dr. Freyberger since the deputation to the London County Council than before.

Mr. Troutbeck has stated publicly that "general practitioners are not fit to make post-mortems and that no barrister would profess to know all the branches of his profession." Now I am not concerned as to the legal qualifications of barristers, though I am inclined to agree with Mr. Troutbeck about their limitations; but I repudiate Mr. Troutbeck as an authority on medical qualifications and as long as he holds the view that a general practitioner is not fit to make a post-mortem examination and acts up to it there can be no *modus vivendi*. I take it that the London County Council instructions were communicated to all the metropolitan coroners, but not one of the others is acting as Mr. Troutbeck does, and even he confines his operations to Battersea and leaves Westminster alone. In the circumstances I think we had better reserve judgment for some little time.

I am, Sirs, yours faithfully,

LEONARD S. MCMANUS, M.D. R.U.I.

St. John's-hill, March 10th, 1903.

[ENCLOSURE.]

Date.	Total number of post mortem examinations.	Number performed by Dr. Freyberger.
Nov. 22nd, 1902, to March 5th, 1903	58	35
Jan. 1st to March 5th, 1903 ...	36	20
Feb. 16th to Feb. 28th, 1903 ...	5	5
March 1st to March 5th, 1903 ...	5	4

To the Editors of THE LANCET.

SIRS,—It is earnestly to be hoped, in the best interests of the medical profession, that the discussion concerning the introduction of the special pathologist as a regular feature at coroners' inquests will not be allowed to drop, although the London County Council have shown a conciliatory disposition. Questions of vital interest are involved in Mr. Troutbeck's procedure and they must not be lost sight of because the unfortunate tendency to personality makes discussion difficult or because the London County Council do not desire further trouble in the matter. There are three things that must strike all those who have followed the controversy as being the particular ones that call for consideration. The first is the legality of Mr. Troutbeck's attitude; the second is the economy, under which may be included the efficiency, of employing the so-called expert pathologist in any save very special cases; and the third is the anomalous nature of Dr. Freyberger's position.

1. Mr. Troutbeck has accepted an appointment at the hands of the London County Council, agreeing with them to employ Dr. Freyberger to perform post-mortem examinations in special cases. It appears to many well-informed persons (apparently, Sirs, to yourselves) that by the Coroners Act Mr. Troutbeck has not the discretion to instruct and to pay Dr. Freyberger to perform post-mortem examinations for the purposes of inquests held upon persons whom he has not attended in a district where he does not reside. The Act may be wrong, but, if it is, Mr. Troutbeck has no power to amend it. He can, and does, plead that he is carrying out the wishes of the authority to which he owes his appointment, but he must not obey that authority, however absolutely he may agree with its views, to the point of breaking the law. The legality of Mr. Troutbeck's procedure should be raised immediately in the usual way—by calling the attention of the public auditor to Dr. Freyberger's fees and asking to have them surcharged. Any ratepayer in the district can do this and this is the first thing to be done. The London County Council acknowledge their inability to appoint an expert pathologist with a salary, but it is not at all clear that Dr. Freyberger's services are requisitioned in a legal manner.

2. Economy has been put forward by Mr. Troutbeck as an argument for the employment of Dr. Freyberger to perform post-mortem examinations in special cases. As was recently pointed out in THE LANCET, it is difficult to see where the economy of the innovation comes in. Dr. Freyberger has offered to perform post mortem examinations for the London County Council at coroners' inquests in return for the statutory fee of two guineas. But for two guineas the coroner can have the evidence of the medical man who had been in attendance upon the deceased *as well as* a report of the post-mortem examination. It will therefore be seen that the coroner cannot have medical evidence bearing upon the condition and circumstances of the deceased while alive, *as well as* a report upon the post-mortem appearances, unless he pays three guineas. An economical procedure which involves the spending of three guineas instead of two guineas could hardly escape criticism; and Mr. Troutbeck has seemed to design to dispense entirely with the evidence of the medical practitioner, so that although he saves no public money by the employment of Dr. Freyberger he may at least lose none. I venture to think that his method of securing economy is as perilous as it is ineffective; it saves no money and lays the community open to grave risks which I mention, though to do so is to repeat what I have often read in THE LANCET. The medical man who sees the circumstances in which the deceased was placed before death, the domestic environment, the behaviour of the relations, the state of the death chamber, and, perhaps, the position of the corpse before removal to the mortuary, must have opportunities of judging concerning the cause of death which will be quite denied to the specialist who is merely paid to make a post-mortem examination. It must not be taken for granted that, because the employment of Dr. Freyberger appears illegal, uneconomical, and futile in many cases, there is never any room for an expert pathologist at a coroner's inquest. While every qualified medical man possesses the ability to make a post-mortem examination in an every day case, it can easily be seen that circumstances will arise when the range of ordinary professional knowledge does not suffice for the giving of evidence which may be fraught with consequences of the gravest importance to other parties. In such cases it is quite right that the coroner should be assisted by having the necropsy conducted by some scientific man of known pathological and forensic attainments. Such expert witnesses are not numerous and it should be no more possible to offer them a fee of two guineas for their services than it would be to offer, say, Sir Edward Clarke the same sum as a fee with brief. The real economy of the innovation which it is being attempted to introduce into coroners' practice by Mr. Troutbeck, in agreement with the London County Council, is the dispensing with the services of the highly-paid expert. By the payment to Dr. Freyberger of two guineas for his services at so-called special cases (the special circumstances of some of the cases where Dr. Freyberger has been employed are not very obvious) the payment of proper fees to expert pathologists in cases of serious difficulty is eluded. It is not certain that the community would consider that such economy was worth having if they understood its meaning, and it is noticeable that, whereas the necessity of saving the guineas to be paid for the medical evidence of the general practitioner has been insisted upon by Mr. Troutbeck, the

saving of larger fees in important cases has not been brought to public notice. I have an idea that there may be legal difficulty in paying proper fees to expert pathologists, but the same may be said of paying any fees at all to them.

3. This brings me to my third point, which is that the position of Dr. Freyberger is anomalous. He has been appointed by the London County Council to perform post-mortem examinations in special cases. The interpretation of the word "special" is left to Mr. Troutbeck, but there can be no doubt that all inquests must resolve themselves into those where advanced and special pathological knowledge is required and those where the usual pathological equipment will suffice. In the latter cases the general practitioner is perfectly able to make the post-mortem examinations and to give the necessary evidence and Dr. Freyberger's assistance at two guineas per case is an unnecessary extravagance. In the far fewer cases where great special knowledge is required, Dr. Freyberger may be able to fill the part, but the London County Council should not have appointed, for the fulfilment of such important functions, the first gentleman who offered his services cheaply. The post should have been advertised and application publicly invited. In this way the public and the medical profession would feel that an attempt had been made to obtain the best man for an arduous appointment. The anomalousness of Dr. Freyberger's position is that in most cases he is not wanted and that in the few cases where the expert pathologist is wanted the public has not a sufficient guarantee of his skill. The Control Committee of the London County Council have recommended that the services of other experienced pathologists should be obtained and hope for the coöperation of the Royal Colleges of Physicians of London and Surgeons of England and of the big London hospitals in obtaining competent men. This is a real step forward. The recommendation has been adopted by the London County Council. It now remains to be seen, firstly, if any expert pathologists will be tempted by the small fee to offer their services, and, secondly, if the coroners will be content to use their help only in *special* cases.

I am, Sirs, yours faithfully,

M.B.

LUNACY AND THE LAW—"SINGLE CARE."

To the Editors of THE LANCET.

SIRS,—The able articles which have recently appeared in the medical journals from the pens of Dr. E. W. White and Dr. T. Outterson Wood and the letter of Dr. H. Rayner in THE LANCET of March 7th, p. 681, are well worthy of perusal by, and the serious consideration of, every member of the medical profession, be he alienist or consultant physician or engaged in the ordinary every-day practice of his profession, for they have raised a timely and a warning note, which is not to be disregarded, on this very important subject. It is, perhaps, not too much to say that many of the communications which have appeared in the press, lay and medical, on the law as it affects single care in the certificated, the uncertificated, or the so-called border-line cases betray ignorance of the most elementary necessities and precautions which must be used in dealing with persons of unsound mind in whatever stage of the disorder, and that some of the suggestions set forth in all seriousness tend directly to the revival, or rather the establishment, speedily of all the evils which it has been the province of the various lunacy Acts, *ab initio*, to render impossible.

Amid much that is irrelevant and impracticable in the discussion hitherto there stands forward prominently and with unanimity one opinion and that is, that only fully-trained, qualified, and experienced persons are fitted for the exceedingly delicate and tactful task of properly tending and ministering to the unsound in mind, whether the manifestations of the unsoundness be of the mildest or of the most exaggerated type. To secure and to retain this trained intelligence for the care of the mentally unsound and to insure its exercise under the most favourable conditions for the patient is the problem of the hour which awaits solution. It is acknowledged on all hands that many of those who now assume responsibility for cases under single care are not persons who come up to the standard indicated here. Surely a disordered brain and nervous system are in at least as much need of the specially trained physician and nurse as is a broken limb in need of the surgeon and his specially trained surgical nurse, or some severe internal malady of the physician with similar aid to suit his requirements.

How are the desirable conditions herein set forth to be best attained and with as little disturbance as possible to the existing state of the law? At the present moment cases of mental unsoundness in any of their stages or varieties can be treated in hospitals for the insane or in private houses adapted for the purpose and licensed by the Commissioners in Lunacy or by magistrates, either during voluntary residence in one or other of them, or under order and medical certificates, whilst the poor or pauper class are cared for in the various county or borough asylums. It may be taken for granted that in any of these institutions trained medical and nursing skill will be amply provided. Why not, then, go a step further in the same direction and authorise by law that "single care" be constituted on similar lines under licence by Commissioners in Lunacy or magistrates who in granting such licences would hold themselves responsible for the suitability of the provision made for single care in every respect, as well as for skilled medical and nursing treatment? Such a provision would at least insure that none but properly qualified persons and suitable premises and exercising grounds were provided, for licences would be granted to none other. Single patients or boarders would thus also with certainty be brought under the very necessary supervision of commissioners and magistrates, evasions of the law would be more easily detected, and serious abuses of any kind would certainly be abolished or minimised. Physicians who have hitherto felt themselves debarred from the single care of their patients by fear of being brought under the operation of law while so doing would thus be placed at rest and feel in tranquil security on this point whilst engaged in their duty.

I am, Sirs, yours faithfully.

West Malling, March 7th, 1903. JAMES ADAM.

THE LIMITATIONS OF THE GENERAL MEDICAL COUNCIL.

To the Editors of THE LANCET.

SIRS,—As in your leading article under the above heading in THE LANCET of March 7th, p. 671, you were good enough to refer to myself, I shall be glad if you will allow me to write a few words in reference to the question as to school board certificates which I submitted to the Executive Committee of the General Council of Medical Education and Registration. You express some surprise that medical men, including myself, should have brought before the Council inquiries concerning the etiquette and conduct of the medical profession. Now, Sirs, I do not question for a moment the accuracy of your definition of the powers and duties of this body, but if the supreme authority on all matters pertaining to medical education and registration has no power to make regulations or to give advice concerning medical etiquette and what does or does not constitute improper or "infamous" conduct, I should like to inquire from what quarter a perplexed medical man can hope to obtain guidance in regard to the various thorny problems which members of the profession are liable to encounter. To take, for instance, the various questions referred to in your article. All these, I think, it will be admitted are matters concerning which it is desirable there should be some authoritative standard of conduct by which medical men may shape their course and it is, I think, evident from your comments that in regard to none of them is there any accepted regulation at the present time. If, therefore, the General Medical Council has no power to decide on such matters, is it not much to be desired that its sphere of work should be extended in this direction or that some other body should be vested with the required authority? I do not wish now to go into the particular question as to school board certificates which I submitted to the Council, but I may remark that I was induced to put it by the discovery that there is a wide divergence of practice and opinion among metropolitan medical men on the subject—surely a very unsatisfactory state of affairs.

I am, Sirs, yours faithfully,

DENNIS VINRACE.

Alexander-square, South Kensington, S.W., March 9th, 1903.

*** We did not intend to indicate exactly surprise that Mr. Dennis Vinrace should have sought the views of the General Medical Council in the particular circumstances. We meant rather to express the opinion that medical men as a body do not appreciate what the General Medical

Council can and cannot do. The General Medical Council is frequently blamed for supineness in situations where it has no possible power or discretion to act. Of course, the Medical Acts require amendment in the interests of the public and amendment in some directions might take shapes that would render the Council more practically useful to the medical profession.—ED. L.

COLLECTIVE INVESTIGATION OF PUERPERAL ECLAMPSIA.

To the Editors of THE LANCET.

SIRS,—The request of the Clinical Society of Manchester for reports of cases of eclampsia is meeting with a hearty response from medical men all over the country. The committee would like to point out that a diminution in the excretion of urea is coming to be regarded as an important physical sign of the pre-eclamptic state, more important, perhaps, than albuminuria. The vital point is one on which they hope their investigations will throw much light and reports which give quantitative estimations of urea and daily quantity of urine will be doubly valuable for this reason.

The use of the hypobromite process with Southall's ureometer is very simple and the apparatus is inexpensive (it can be obtained through any druggist for about 3*s*.). It may perhaps be hoped that those who are favouring us with reports of cases will find time to furnish data enabling us to correlate the output of urea with the gravity of the case.

We are, Sirs, yours faithfully,

T. ARTHUR HELME,
President.

J. PRICE WILLIAMS,
Honorary Secretary for the Investigation.

J. HOWSON RAY,
Honorary Secretary Clinical Society.

22, St. John-street, Manchester, March 4th, 1903.

THE LARGE INTESTINE AS AN INTERMITTENT SYPHON.

To the Editors of THE LANCET.

SIRS,—Quite apart from any opinion as to the theoretical merits of Dr. R. W. Leftwich's ingenious views, as expressed in THE LANCET of Feb. 7th (p. 374) and 21st (p. 552), clinical observation supplies us with a demonstration of the fact that the colon is capable, when its lumen is patent, of transmitting fluid by gravitation—using that term in the usual sense—more rapidly than by longitudinal and annular peristalsis. My first observation five years ago and many subsequent ones were made in patients suffering from typhoid fever and led to my adopting a method of treatment which I described under the heading of "postural treatment" in a note on "Suggestions for the Practical Treatment of Typhoid Fever" published in THE LANCET.[1] I found that when the right loin was heavy and "dull" with fluid fæces, and the left loin resonant with gas, the cæcum and the sigmoid flexure could be made to exchange their contents and the character of their percussion note within a very few minutes by suitably tilting the bed or more simply the patient's body. Moreover, the same exchange could be subsequently reversed by reversing the lateral decubitus—a point of some importance in treatment, as it enables the cæcum to be charged with irrigation fluid after it has been cleared of fæces. In cases of that kind my present practice, which I may describe as the "empty bowel treatment," is to empty the cæcum by posture into the sigmoid flexure where the fæcal fluid is within reach of the long tube or of an evacuating enema and then to irrigate the colon by means of a double tube with water containing charcoal powder in suspension. I now regard this daily toilet of the colon as belonging to the sanitary treatment of most cases of typhoid fever. The other details of the treatment concern the upper bowel and do not bear upon the point now under discussion.

I still consider that the rapid transmission of fluid through the length of the colon is mainly due to the alteration in the respective levels of the fluid and of the gaseous contents of an abnormally patent and atonic bowel, though I am prepared to admit that syphonage may come into play if at any moment the transverse colon and its flexures should become charged with an exclusively fluid column. The mechanism by which this syphonage might be brought about by posture and by other favouring circumstances might perhaps be illustrated by a simple schema consisting of a glass tube shaped like the colon (interrupted in the middle by a short length of indiarubber tubing) with one end tightly fitted into the neck of a flask containing water and the other end fitted into a flask containing air. But no schema can teach us the complex working of the living bowel. It is possible that the gas contained in the cæcum may act under the influence of lateral pressure like the compressed air in the ordinary indiarubber hand ball pump in propelling the contents of the colon and sometimes in charging the transverse colon with a continuous column of fluid capable of syphonage. However this may be, it is probable that our knowledge of the mechanical functions of the colon is far from complete; and Dr. Leftwich's suggestive investigation has helped us to realise more clearly the many-sided resources of the living bowel which may combine some of the properties of rigid tubes with the advantage of contractility. I am, Sirs, yours faithfully,

Curzon-street, W., March 8th, 1903. WILLIAM EWART.

[1] THE LANCET, Dec. 8th, 1900, p. 1644.

THE VENTILATION OF SCHOOL BUILDINGS.

To the Editors of THE LANCET.

SIRS,—I should be very much obliged if you would allow me through the medium of THE LANCET to ask for an opinion upon the medical aspects of the following point in connexion with ventilation. Certain systems of warming and ventilation are so arranged that the heating of the rooms is entirely done by the admission of hot air—that is to say, fresh air is propelled into the rooms but at a sufficient temperature to obviate the need of any further direct heating. This plan is becoming more common and it would be very useful to have some opinions upon the hygienic aspects of breathing air which, to allow for the cooling effects of the windows and walls, must be when admitted very considerably above the required temperature of the room. Would not such conditions tend to have an enervating and depressing effect upon the vitality of the children, to weaken their powers of resistance to colds, &c.? It has been suggested to me that one result of this would be a tendency to adenoid growths; the system is very largely used in America, so that it would be interesting to know whether the complaint is more prevalent in that country than here where the plan, although in use in many places, has not been adopted to anything like the same extent. I am, Sirs, yours faithfully,

FELIX CLAY.

Buckingham-street, Strand, W.C., March 4th, 1903.

ADENOMA OF THE RECTUM.

To the Editors of THE LANCET.

SIRS,—In your leading article on this subject[1] you make the suggestion that an adenoma of the rectum may be a papilloma. I have examined a fair number of these growths and I have found that the greater number of them have no papillæ but are composed of tubes lying in a connective-tissue stroma. If they have no papillæ how can they be papillomata? The commonest simple tumour of the rectum is the adenoma. The villous tumour, which is not so common, contains both papillæ and tubes and is an adeno-papilloma. I have never met with a pure papilloma of the rectum, although it is not improbable that they occur. I have entered into the question of the nomenclature of these epithelial tumours in the Erasmus Wilson Lectures for 1902[2] and in a communication to the *Journal of Pathology and Bacteriology*[3] a reprint of which I inclose.

I am, Sirs, yours faithfully,

CHARLES POWELL WHITE.

St. Thomas's Hospital, March 3rd, 1903.

UNITED KINGDOM POLICE SURGEONS ASSOCIATION.

To the Editors of THE LANCET.

SIRS,—Will you kindly allow me to inform all those of your readers who are police surgeons of the following statement? I have forwarded a copy of our last annual report

[1] THE LANCET, Feb 28th, 1903 p. 597.
[2] THE LANCET, Feb. 15th (p. 423) and 22nd (p. 491), 1902.
[3] The Pathogenesis of Tumours, Journal of Pathology and Bacteriology, June, 1901.

with a form of application for membership to each police surgeon whose name I have been able to find in the Constabulary Almanack. As, however, this does not contain a complete list, and as I am anxious to secure the membership of every police surgeon willing to join, I will send a copy to any who will forward to me his name and address.

I am, Sirs, yours faithfully,

FRED. W. LOWNDES, Honorary Secretary.

40, Knight-street, Liverpool, March 5th, 1903.

THE CULTIVATION OF ANAEROBIC BACTERIA.

To the Editors of THE LANCET.

SIRS,—Will you permit me to thank Dr. Klein for drawing my attention to his method of anaerobic plate culture as set forth in the medical officer's report for 1897–98. I am quite familiar with this method, as also with those of Gabritschewsky, Botkin, Hammerl, and other investigators who have worked at this subject. But in my hands these methods have not given uniformly satisfactory results, as, for instance, in the plate culture of such a strictly anaerobic micro-organism as bacillus tetani.

Dr. Klein's method and mine are the same in principle but in apparatus they differ. I use a chamber having a very small air space provided with most efficient seal, whereby the vacuum created by the absorption of oxygen by the pyrogallic solution is maintained. In apparatus of the bell-glass pattern having a large air space I have found that this is not always the case.

I am, Sirs, yours faithfully,

H. S. FREMLIN.

Government Lymph Laboratories, Chelsea Bridge, S.W., March 9th, 1903.

A DISCLAIMER.

To the Editors of THE LANCET.

SIRS,—The report of an interview which appeared in the *Daily Telegraph* of March 3rd was published entirely without my authority or knowledge. I was quite unaware that the gentleman who engaged me in casual conversation in the office of the secretary of the hospital was a reporter.

I am, Sirs, yours faithfully,

Cavendish-square, W., March 9th, 1903. DUNDAS GRANT.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Indiscriminate Sale of Cocaine in India.—Paralytic Affections among Men and Cattle in the Central Provinces.—The Cremation Society of Bengal.—The Plague Epidemic.—Reorganisation of the Health Department in Bombay.

THE Bombay High Court in a test case instituted at the instance of the Government of Bombay has held that cocaine is not an intoxicating drug within the meaning of the Excise Act. The effect of this ruling will apparently be that no licence such as has been insisted on by the Governments of Bengal and Bombay will be necessary for the sale of cocaine and that the law as it now stands is powerless to check the cocaine habit which, as I have previously reported, is spreading rapidly in many parts of India.

In consequence of the spread of a paralytic affection attacking human beings as well as cattle in parts of the Central Provinces an official inquiry is to be held. The complaint is due, it is believed, to the eating of certain classes of dhal, more particularly that known as kasari dhal, or latri. As the botanical name for this is lathyrus sativus the complaint will probably turn out to be a long-recognised one. The natives recognise its poisonous properties in both themselves and their animals but partake of it on account of its cheapness. Horses and bullocks lose control over the hind limbs, becoming paralysed. This grain is also said to produce dyspnœa and roaring in horses when put to work. Many years ago a widespread occurrence of paralysis in Sindh, after a season of extensive inundations in which kasari was grown on an exceptionally large scale, drew attention to it, and in the Azanzarh district, where paralysis is common, kasari forms an important article of diet.

The Cremation Society of Bengal, which now numbers nearly 100 members, is being registered under the Companies Act and hopes to obtain the control and management of the crematorium which the corporation proposes to erect.

The plague mortality continues to increase. Last week 25,870 deaths were reported throughout India, against 24,500 in the previous seven days and 15,165 in the corresponding week of last year. The Bombay Presidency returns 11,922 deaths, the Bengal Presidency 2817, and the Madras Presidency 592. Then we have the Punjab with 3735 deaths, the Central Provinces 206, the United Provinces 2599, the Mysore State 694, the Hyderabad State 932, and Berar 462. Bombay city reported 612 deaths from plague alone, Calcutta 142, Poona 849, and Karachi 33. When it is borne in mind that Poona contains only a little over 100,000 inhabitants the frightful mortality going on there will be recognised. Dr. Shave, one of the plague medical officers now at Sholapur, has been selected for appointment to the Indian Medical Service.

The health department of the Bombay municipality has been rearranged. Bombay is now divided into three divisions, each under the charge of a health officer. For purposes of registration the city has been divided into ten registration districts, in each of which there is a municipal dispensary. At each office there are a qualified native medical man and three hospital assistants who inquire into the cause of every death, investigate cases of infectious disease, and take action for removal to hospital. They also treat cases of sickness at the homes of the people in poor and urgent cases. A nurse who is a qualified midwife is attached to each district. Dr. J. A. Turner is the executive health officer and Dr. C. H. Cayley, Mr. W. Venis, and Dr. Sorab C. Hormusji are the divisional health officers.

Feb. 12th.

THE ORGANISATION OF THE PROFESSION.

(FROM OUR SPECIAL COMMISSIONER.)

The Situation at Cardiff.—The South Wales Colliery Surgeons and the Poundage System; the Satisfactory Payments obtained.—The Question of Concentration or of Subdivision in Medical Practice.

THOUGH, as recently described, a notable effort has been successfully made to organise the profession at Swansea it must be admitted that, taking South Wales as a whole, but little has been done. The only other organisation brought to my notice was the East Glamorgan and Monmouthshire Colliery Surgeons' Medico-Ethical Society. At Cardiff, for instance, which is the most important town in South Wales, there is no medical union and this notwithstanding the presence of Mr. T. Garrett Horder who has made praiseworthy efforts in regard to the question of hospital abuse. Nevertheless, there seems to be a total absence of public spirit among the members of the profession at Cardiff. Some of the practitioners appear to fear having to subscribe to yet another institution and they complain that there are already so many calls made upon them. Nor is there any indication that they have realised that under its new constitution the British Medical Association, which is to meet so near to them this year, should be able to take economic questions in hand. It is doubtful if anyone has prepared any sort of statement or proposal or has fully grasped the leading potentialities of the new conditions and methods of organisation. On the other hand, there is this excuse—namely, that the rate of payment for contract work at Cardiff is higher than it was at Swansea. The members of clubs for the most part pay 1*d.* per week and these are not family clubs. It will be remembered that at Swansea the average pay was 1½*d.* per week, or 6*s.* 6*d.* per annum, for family clubs. Such family clubs as exist at Cardiff pay, I am told, from 10*s.* to 13*s.* per year per family. Nevertheless, the dockers' medical aid organisation only pays 8*s.* 8*d.* per family; however, this latter and smaller figure is not lower than the terms accepted at Swansea. But, as one of the local practitioners explained, it is not so much the amount the members pay as the habits that prevail among them. In some societies or clubs the members may be impressed with the very just idea that as they pay so little they should only seek the advice of their medical officer when there is really need of

such assistance. Others, on the contrary, fancy that they have a right to call on their medical officer for the most trivial ailment and are constantly coming for medicine when there is really nothing the matter with them. Such clubs do not pay whatever the amount of their subscription.

Some time ago an insurance company attempted to establish itself at Cardiff and it introduced a medical practitioner. This company employed a woman canvasser who went from house to house extolling the advantages of insuring and the virtues of the medical officer who was to attend all those persons who took out a policy. This woman canvassed the patients of different practitioners. One well-established practitioner told me that some of his patients asked him whether he kept a club. The advantages of joining a medical aid association had, they said, been explained to them by a lady who had called. They felt that, in justice to themselves, they ought to join some such organisation, but rather than subscribe for the medical man whom the lady canvasser had mentioned to them they would prefer to join a club with which my informant might be connected. In other words, they did not wish to change their medical adviser, but they preferred paying 1*d.* per week instead of the usual fees as private patients. As most of these people can afford to pay the usual fees it will be seen what a demoralising effect such canvassing must have upon those who are ever anxiously hunting in all directions for cheapness. They can pay for medical attendance, but they are nevertheless only in receipt of modest incomes and would not at all object to reduce the cost of medical attendance just as they would with equal eagerness gladly accept free seats at the theatre. Of course, such persons are advised by their usual medical attendants not to join any club or medical aid organisation, but such advice would have much more force if it could be shown that the medical practitioners of the town were organised against the encroachments of clubs or insurance companies and their lady canvassers. Fortunately, however, for the practitioners of Cardiff the medical officer whom the insurance company had introduced into the town sold his practice. It was bought by a medical man who, to his credit be it said, disapproved of the whole system, so that the lady canvasser and the insurance company disappeared from the field.

From Cardiff I went to Aberdare where I found that exceptionally favourable conditions prevailed. The payment at the collieries in this valley and in the Rhondda valley is based on what is denominated the "poundage" system. Instead of paying a fixed sum per week the charge is, like the income-tax, so much in the pound. This is a very fair arrangement, because those who have low wages pay little and those who have better wages pay a proportionately larger sum. The only difficulty is to agree as to what that proportion shall be. Fortunately for the medical practitioners the miners have from the first shown no disposition to drive a hard bargain. I appears that at Ynysybwl, Abercynon, Treharris, Merthyr Vale, in Monmouthshire, and in the whole of the Rhondda Valley, the miners pay 3*d.* in the pound for medical attendance. Nor is this a recent arrangement due to special endeavours on the part of the medical profession, for the custom has prevailed now for more than half a century. All that has been necessary of recent years has been to extend this system to a wider area. Therefore meetings of local practitioners were held during 1899 at Aberdare and the Aberdare Valley Colliery Surgeons Society was formed—as a branch of the Medico-Ethical Society mentioned above—with Dr. E. J. Trevor Jones as the secretary. All the local practitioners, with only two exceptions, joined. These two practitioners are not opposed to the movement but their practice is of a different nature. They deal with the town rather than with the colliery population, but the clubs formed by artisans, shop assistants, small tradesmen, &c., were affected by the example of the colliers, and instead of paying from 8*s.* 8*d.* to 13*s.* per annum per family, as at Cardiff and Swansea these clubs pay £1 1*s.* per annum and this directly to their medical officer. Nevertheless, the general feeling among the majority of the medical practitioners is against clubs of any description. They argue in favour of poundage and no intermediaries. So much per pound should be deducted from the wages paid by the employer and forwarded directly to the medical officer selected. There is no need of committees, clubs, or other organisations.

In the Aberdare district the amount thus paid was, however, only 2*d.* in the pound. Consequently, the local practitioners, after meeting and agreeing together, gave notice and even placarded the district stating that they would not attend the colliers and their families for less than 3*d.* in the pound of wages received. Apart from the usual arguments in regard to the increase in the cost of medical education, of qualified assistants, of drugs, instruments, &c., which apply to medical practice in all parts of the kingdom, there is the fact that with the poundage system work has sometimes to be done for nothing and this for a considerable period of time. Most of the colliery surgeons, for instance, experienced very severe losses during the great strike of the South Wales miners. As the miners then received no wages there was no payment for medical attendance, but the medical practitioners had to continue to pay for their drugs, for their medical assistants, and for their usual domestic necessaries. It required some years of prosperity to recoup this loss. Then the local practitioners do more under the poundage system than under the club system. For instance, they provide cod-liver oil, castor oil, and linseed meal, and, what is more important, attend confinements without extra charge. The latter, it is pointed out, is a great benefit and the miner need not endanger the life of his wife during this critical period by the fear of having to pay an extra fee. When the poundage was 2*d.* this did not include midwifery cases, but the medical officers were really called in for confinements and found it a matter of difficulty to obtain extra fees for such attendance. It would, therefore, they urged, be better for the miners as well as for the medical practitioners if everything was included in the one payment and so that this might be done they proposed that the payment should be raised from 2*d.* to 3*d.* in the pound. After some discussion this proposal was accepted by the miners, so that all parties are satisfied and there is no grievance on that score. Whatever difference of opinion may exist now relates rather to the distribution of the money paid than to the amount that should be paid. It may be said that the miners, generally speaking, do not begrudge the 3*d.* in the pound which they pay, and on the other hand, the medical practitioners recognise that in the circumstances this is a sufficient payment. But some miners have remarked that they do not like the manner in which newly qualified assistants are employed. They come down among the miners, the latter become acquainted with them and learn to like them, and then just as they begin to appreciate each other the assistant disappears and some other young gentleman comes to take his place. The miners have wondered whether there might not be a little bit of sweating going on within the ranks of the medical profession itself, and whether in the employment of qualified assistants there is not a tendency to get rid as soon as possible of the more able and popular of these assistants for fear that they might settle down as independent practitioners in the district. Ought we, said the miners, to pay our 3*d.* per week in such a manner as to create a monopoly of medical practice?

The other side of this question is ably represented by Mr. Evan Jones and his son, Dr. E. J. Trevor Jones of Aberdare. Mr. Evan Jones from the first has laid down that it is better to pay £1000 a year to one or two medical practitioners of the very highest standing who would employ qualified assistants than to pay £500 separately to eight practitioners. The eight practitioners at £500 a year each cannot have all the instruments, operating-tables, and means of treatment that can be provided at one central and better equipped surgery. It must be remembered, also, that in this neighbourhood there is no general hospital available, but only a small private cottage hospital supported mainly by the Marquis of Bute. Yet fearful accidents occasionally occur in the mines which necessitate the most difficult operations. Mr. Evan Jones urges that considering the great responsibility this involved there should be one chief surgeon and no other. The miners should be free to elect whom they pleased, but once elected his authority should be undivided. If many medical officers are appointed they can have but small incomes and will be too poor to secure proper assistants and to undertake every sort of work. They must therefore send the more serious cases to the hospitals and these are too far away. Mr. Evan Jones and Dr. Trevor Jones have between them some 10 000 miners on their list and they employ six qualified assistants. Also they can fall back upon the cottage hospital established by the Marquis of Bute. This, then, is in itself a huge organisation and it is maintained that this sort of collective medical combination gives better results than the splitting up of the work into

individual practice. This opens out an interesting scientific, practical, and economical problem. Is it better to have two leading men employing on the wages system six assistants and concentrating the responsibility and the work in their own hands, or else to have eight independent practitioners, each with his own individual practice and his small income to carry it out? Thus among the colliers and in regard to the methods obtaining for their treatment in sickness has the economic struggle between the rival principles of collectivism and individualism manifested itself. This is one of the several ways in which the economical evolution affects medical practice as it affects all the other economic conditions of modern civilisation.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Royal Infirmary.

ALDERMAN SIR JAMES HOY, the late Lord Mayor, has prepared a report on the question of the Royal Infirmary site and its proposed purchase by the Manchester City Council. It has been approved by the subcommittee and will be presented for approval to the special committee appointed some time ago by the council to consider the question. It may be remembered that the late infirmary board fixed the price at £400,000 and the present board is not likely to accept less, for it considers that it is worth far more than the £20 a yard at which it is offered. It could not, indeed, very well do so, as it is stated that it has had a definite offer by a syndicate of £700,000, which puts the lowering of the price below the £400,000 out of the question. This sum, indeed, is much less than what it would accept from any purchaser but the city itself. If the city council fails to secure this Piccadilly site, the finest in Manchester, for a great civic purpose it will illustrate once more the timidity and short-sightedness which lost it Trafford Park. That lesson, however, was a severe one which it may be assumed is not yet quite forgotten. The report has not been made public but is said to contain suggestions forming an admirable basis of agreement. It is desirable that, while there is no ill-judged haste, there shall be no waste of time, for the pressure on the infirmary is very great. Indeed, Mr. John Thomson, the chairman of the board, said publicly on March 5th that "he had only that day consulted with the doctors as to the practicability of erecting a temporary corrugated iron annexe." He hoped that the corporation would buy the site and so enable a large and better infirmary to be built elsewhere.

Manchester and Salford Sanitary Association.

The annual meeting of the Manchester and Salford Sanitary Association was held in the town-hall on Feb. 27th. After the adoption of the report, which gave an account of the previous year's work, a motion was passed approving of the efforts of the association "to spread among the people a knowledge of the laws of health, to promote cleanliness, temperance, and thrift, to obtain a purer atmosphere, to improve the dwellings of the poor, and to preserve the lives of their children," and declaring that these efforts "deserved a more adequate support from the general public." Major-General Sir F. Maurice addressed the meeting on the subject of the national health.

The Salford School Board and the Physical Training of Children.

The Salford School Board has for some time devoted much attention to the physical welfare and training of the children in its schools and more especially since the appointment of a medical officer to the board in 1898. Careful inquiries are made as to the eyesight and hearing of the children and the medical officer makes a personal examination of those below the normal standard. Where glasses are advisable the parents are recommended to seek medical advice, and so also in many cases of defective hearing medical advice is suggested. The head teachers of the older scholars have been directed to arrange for a course of instruction on the laws of health A syllabus of lessons has been drawn up by the medical officer, including air-supply, water-supply, food, sunlight, cleanliness, clothing, exercise, rest, dwelling-house, and the avoidance of active causes of disease. The state of the young adults of the Manchester population, as shown by the rejection of 8000 out of 11,000 would-be recruits, has been noted by the Salford School Board and it seems to be making an earnest effort to do what it can to arrest the decadence that has already become so alarming. A record is being taken by a committee of the board of the weight and measurement of the children at different ages and of the committee of four three are medical men. Three schools have been chosen for the inquiry, as they are typical of the different classes of children coming under their care. The records are taken by the medical officer with the coöperation of the committee, but it is intended to have the teachers instructed so that they can carry out the work. The height, weight, chest measurement, and circumference of the head are taken and inquiry is being made as to there being any correlation between the physical condition of the children and their home circumstances. All this is preliminary to the further consideration as to whether anything can be done, in addition to what is now done, to improve their physical condition. At present physical training is given in all the board schools in accordance with the model scheme of the Board of Education which the adult teachers have become competent by special training to carry out. It is to be hoped that with the new Education Act without neglecting the mind more attention will be given throughout the country to the bodies of the children, for hitherto they have had less than they have deserved.

Food Inspection in Manchester.

Although from the hygienic point of view the destruction of unwholesome food is necessary, yet when the tendency to rise in price that seems to prevail almost universally is considered it is deplorable that there should be so much loss year by year as is shown in the report of the market committee of the city council. Last year 176,754 pounds of meat were condemned and destroyed in Manchester. Of this enormous quantity there were 117,498 pounds of beef, 48,312 pounds of fish, 31,195 pounds of shell-fish, 5901 rabbits, besides hundreds of hares, grouse, pheasants, quails, poultry, &c. With the exception of 913 pounds of meat, 1078 pounds of fish, and some tins of preserved food-stuffs which were exposed for sale all was surrendered after being condemned by the inspectors. The meat and fish were discovered at the wholesale and retail markets, at railway stations, shops, on hawkers' carts, at farms, in the cold-air stores, and other places. The hawkers' carts, however, were not bad by comparison. The great bulk of the meat was condemned at the abattoirs and markets. Of the rabbits and game condemned at the Smithfield Market the former are the more numerous, as one would expect. Black currants seem to bear transport and to keep worse than most other fruits, nearly 1000 boxes having to be destroyed. It seems curious that no mention is made of partridges, though quails and ortolans (93), pigeons, turkeys, &c., come in for condemnation. In addition to the inspection of the abattoirs and markets, 3916 visits were made to the private slaughter-houses, of which there are still a number in Manchester, 14,059 carcasses were examined, and 5829 visits were made to shops in the poorer districts of the city. This is a very brief and imperfect sketch of the work done by the inspectors, but enough has been said to show that supply and demand do not adjust themselves automatically and that food preservation and distribution still leave room for improvement and better organisation. That it would be worth while to do what can be done to mend matters is evident from the fact that all this waste takes place in one town, with a population of less than 600,000 and that there is no reason to suppose that Manchester differs from other parts of the country in being careless and improvident. The loss of food that must be going on in a population of about 41,000,000 is deserving of more attention than we often give to it, and perhaps none the less so because it must be difficult to prevent.

Legacy to the Salford Hospital.

The late Mr. William Hatton of Manchester has by his will left a sum of £6500 to the Salford Royal Infirmary.

A Presentation Portrait.

A number of friends have subscribed for a portrait of Mr. E. S. Heywood who was for many years the chairman of the Royal Infirmary Board. It will be presented to the infirmary and hung in the board-room. It has been painted by Mr. Ralph Peacock and is described "as a characteristic and faithful likeness of the sitter and as a singularly vigorous and attractive painting." Mr. Heywood, it may be remembered, together with most other members of

the board, resigned his position when by the vote of the trustees it was decided not to rebuild the infirmary on the Piccadilly site. It is well that the infirmary should possess this memorial of one who so long and faithfully rendered valuable and ungrudging service "to the cause of Manchester's great charity."

New Infirmary at Stockport.

The Stockport guardians yesterday decided on the erection at Stepping Hill of the new infirmary. The Local Government Board has approved of the plans and sanctioned the borrowing of £44,000 in order that the building may be proceeded with.

March 10th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Public Health Matters in Barry.

THE annual health report of the urban district of Barry is of interest from the fact that the district council has displayed commendable zeal in providing the town with such necessary equipments as a bountiful water-supply, a complete sewerage system, a refuse destructor, public slaughter-houses, and an isolation hospital. The addition of a separate small-pox hospital is strongly urged by the medical officer of health (Mr. George Neale) and with the erection of this very desirable institution the town of Barry will stand as an example not only to Welsh towns but to many in England. A local Act, passed in 1896, contains important provisions requiring the occupiers of laundries and dairymen to furnish the medical officer of health in certain cases with a list of customers and requiring dairymen to furnish a list of the sources of their milk-supply and also to notify cases of infectious disease occurring among their servants. The population of Barry, which was 500 in the year 1881, is now estimated at 27,507. The birth-rate in 1902 was 39·2 per 1000, the death-rate was 11·9 per 1000, and the infantile mortality-rate was equal to 103 per 1000 births.

Notification of Pulmonary Tuberculosis in Cardiff.

In his report for the fourth quarter of 1902 the medical officer of health of Cardiff (Dr. E. Walford) states that he received 44 notification certificates of cases of pulmonary tuberculosis and that 50 deaths were registered from the disease during the quarter. It would appear, therefore, that only a small proportion of the cases come to the notice of the health department. The health committee has decided to engage the services of a female sanitary inspector or health visitor whose duty it will be to visit and to inspect the houses in which consumptive persons reside.

Merthyr General Hospital.

In the autumn of 1902 Sir William Thomas Lewis, Bart., offered to build a children's ward in connexion with the Merthyr General Hospital on condition that certain additions were made to the men's ward, the cost of which, amounting to £1000, should be borne by the governors of the hospital. A shilling fund was at once inaugurated by the high bailiff of the town (Mr. Cornelius Biddle, L.R.C.P. Lond., M.R.C.S. Eng.) and has accumulated £500, while nearly £500 have been subscribed by the colliers and ironworkers of the district. When the contemplated additions are completed the number of beds available will be increased from 30 to 50 and an additional annual income of £1000 will be required. Since the establishment of the hospital in 1887 the managers have kept the expenditure well below the income and at the end of 1902 had a balance of £250.

Royal West of England Sanatorium, Weston-super-Mare.

The annual meeting of the subscribers to this convalescent home was held on Feb. 28th. The medical report stated that during the first four months of 1902 no patients were received at the sanatorium owing to the remodelling of the drainage system which had been carried out at a cost of about £2300. The patients admitted during the remaining eight months numbered 1668 (865 men and 803 women). 6330 warm sea baths were taken by the patients. The financial statement showed that the receipts for the year amounted to £3092 and the ordinary expenditure to £3090.

March 10th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Death of the Librarian of the Royal College of Physicians of Edinburgh.

BY the death of Mr. J. Mathieson Shaw, M.A., the Royal College of Physicians of Edinburgh has lost a valuable and esteemed official and the Fellows one who was ever ready to help them in their literary investigations. He had a good knowledge of modern languages and although not a medical man had an excellent acquaintance with medical literature. He has left funds to found a lectureship to be called the Mathieson-Shaw Lectureship, the object of which is to bring before medical practitioners and students of medicine the most recent advances and developments in the science of medicine and allied sciences. The fund is vested in the President and Council of the College.

The Morison Lectures of the Royal College of Physicians of Edinburgh.

Dr. G. A. Gibson delivered the second series of the Morison Lectures last week in the hall of the College on Monday, Wednesday, and Friday. The lectures were devoted to the motor affections of the circulation. He dealt with the nervous supply and the causes of the heart's pulsation. He considered the disturbances of cardiac movements under rate, rhythm, and force. The remainder of the first lecture was devoted to disturbances of rate. The second lecture dealt with disturbances of rhythm, while the third dealt with alterations of force. The lectures were well attended and the lecturer gave a clear and pleasant exposition of the facts and theories bearing upon the subject with which he dealt.

Sir William Muir.

On March 5th Sir William Muir was presented with an illuminated address from the students of the University of Edinburgh on the occasion of his retiring from the Principalship of the University. The presentation took place in the McEwan Hall and was largely attended.

March 9th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Small-pox in Dublin.

THERE are now 16 small-pox patients in Dublin, one being a student of Trinity College. The patients are all being treated in the corporation isolation hospital and one death from the disease occurred there on March 8th.

The Nomenclature of Disease.

Dr. Ninian McIntire Falkiner, President of the Section of State Medicine of the Royal Academy of Medicine in Ireland, briefly reviewed the Nomenclature of Diseases and Causes of Death from the period of William Cullen of Edinburgh up to the year 1901 at a meeting of the section held on Feb. 20th. At this date Dr. J. F. W. Tatham's modification of the nomenclature of diseases (1896) was adopted for the official reports on vital statistics for these countries. In the course of his address Dr. Falkiner appealed to the medical profession to consider the importance of giving a well-defined and accurate "cause of death" when framing the certificate, as it was on this testimony, and this testimony alone, that the value of the medical statistics of the nation depended. After the conclusion of the address the following motion was proposed by D. Bewley, seconded by Dr. Parsons, and carried unanimously:—

That in the opinion of the Section of State Medicine of the Royal Academy of Medicine in Ireland it is advisable that the department of the Registrar-General of Ireland should be represented on the Nomenclature of Diseases Committee at present sitting in London.

March 11th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Suture of the Patella.

AT the meeting of the Society of Surgery held on Feb. 18th M. Quénu gave an account of some researches which he had made into ordinary methods of suture of the patella. These methods he affirmed had not much inherent strength (*ce sont*

des moyens fragiles). By using a simple apparatus he had been able to exercise traction upon sutured patellæ by means of weights. In a patella sutured in the ordinary way a weight of 43 kilogrammes brought about a slight separation of the fragments, while a weight of 70 kilogrammes separated the fragments by one centimetre. When the broken patella was united by the wire being made to run around the fragments (*avec cerclage*) six kilogrammes brought about a slight separation and 20 kilogrammes a separation of one centimetre. M. Quénu accordingly was of opinion that flexion is a dangerous movement in a case of fractured patella and that a patient who has fractured his patella should take the greatest care not to walk too soon, for a simple movement of flexion exerts a tractive force upon the fragments equal to a weight of 100 kilogrammes. Finally M. Quénu brought before the society a special method of suture of his own which he termed "transverse suture." The wire is passed through both fragments transversely in the shape of a U. This method gives a firmer union than "*cerclage*," but one not so firm as the ordinary method. When the fragments are more in number than two, or being two only one of them is very small, the wire can be passed through the tendon in either the upper or the lower fragment, thus making a "*demi-cerclage*" and M. Quénu added that he had employed this method with success in the case of a woman, aged 63 years. M. Lucas-Championnière considered that the ordinary method of suture gave the most satisfactory results. He asked whether M. Quénu's results were applicable to cases of fracture in a living subject, for he had employed healthy patellæ in his experiments, whereas a patella which breaks is always in some way altered from the normal.

The Alcohol Question.

I have upon previous occasions given your readers full information as to the debates upon the alcohol question which have taken place at the Academy of Medicine.[1] At the meeting of the Academy held on Feb. 24th a somewhat confused discussion took place between those members who were in favour of a general answer being returned to the question propounded by Parliament and those who were in favour of a definite and detailed scheme of regulations concerning alcoholic drinks. M. Laveran was of opinion that the following points should be insisted upon—that flavoured alcoholic drinks are doubly dangerous, first from the alcohol and, secondly, from the essences used for flavouring. Flavouring essences should be classed in the order of their toxicity. The Academy should not proscribe certain flavouring agents and issue regulations only for the use of others, for it would then appear that the Academy approved of the latter. In order to bring about a lessened consumption of flavoured alcoholic drinks it would seem well to lessen the number of shops where they could be bought; to tax such drinks both according to their alcoholic strength and according to the flavouring essence or essences which they contained; and, finally, to appoint a special scientific commission to draw up a scale of taxation. M. Magnan reminded the meeting that epileptiform convulsions had followed the use of "*apéritifs*" flavoured with the following essences, absinthe, meadow-sweet (*reine des près*), *spiræa ulmaria*, and hyssop. The essences derived from these three plants should be absolutely forbidden. The best means of diminishing the consumption of such drinks would be a heavy tax levied upon them. Alcoholism was on the increase. After the trials of the war of 1870 the number of alcoholic cases among the patients admitted to the hospital of St. Anne was 26 per cent. A few years later this proportion fell; it then commenced to increase and at the present time the proportion was 50 per cent. For the female patients the figure was 21 per cent. M. Joffroy pointed out that the Academy could not issue any regulations as to the alcoholic or essential strength of liqueurs without opening the door to the drinker saying that he drank under the ægis of the Academy. All flavouring essences were dangerous and if a list of prohibited essences were published it would have to be enlarged year by year. M. Bouchardat agreed with M. Laveran and thought that the classification of flavouring agents made by M. Laborde was open to criticism. No division for legal purposes could be drawn between the essences of anise, star anise, and fennel, for chemically they were indistinguishable. As for essence of noyaux, it contained only a microscopical quantity of hydrocyanic acid. Many other instances could be adduced to show that the classification of the committee was premature. M. Prunier agreed with M. Bouchardat and said that the idea of legislative regulation was chimerical. He would like the Academy to issue a public notice of its own which would settle the question. M. Hanriot said that the public would consider any liqueur flavoured with an essence not condemned by the Academy to be one authorised by the Academy. He insisted that the question of the alcohol should be dealt with on the same grounds as that of the flavouring essences. M. Laborde consented to alter his report against the next meeting of the Academy, the alterations to include the opinions which had been put forward. It would contain only one list of essences and they would be all prohibited. He hoped that that would be the end of the matter.

[1] THE LANCET, July 5th, 1902, p. 49, and Feb. 21st, 1903, p. 557.

Obituary.

On March 9th there died quite suddenly M. Louis Leblanc, a member of the Academy of Medicine. He was formerly President of the Central Association of Veterinary Surgeons of France, head of the sanitary department of the Prefecture of the Seine, and practised for many years in Paris with great success as a veterinary surgeon. He made numerous reports to the Agricultural Society of France and to the committee for dealing with epizootic diseases, and these reports, together with his researches into various epidemic diseases, were considered of great value. The Academy of Medicine held him in great esteem and the general charm of his character won for him many friends.

March 11th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Ankylostomiasis in Prussia.

SOME anxiety is being caused by an epidemic of ankylostomiasis (*Wurmkrankheit*) which is prevailing in the mining districts of Westphalia and the Rhine Province. The ankylostomum duodenale was introduced some years ago by Italian miners and the number of patients has recently undergone an enormous increase. In the year 1896 only 107 cases were notified and in 1899 only 94, but in 1900 there were 275, in 1901 there were 1130, and in 1902 there were 1355. The disease often proves fatal and as a rule has very serious sequelæ, such an anæmia, dropsy, cachexia, and sometimes amaurosis. The mining population are therefore in something like a state of panic and the Socialist party is demanding that the Imperial Government should make more liberal grants of money for the purpose of combating the disease. A commission under Professor Loebker, the chief medical officer to the miners' hospital at Bochum, has been sent to Hungary, where the disease was prevalent some years ago, for the purpose of gaining an acquaintance with the methods adopted by the local authorities there. It is stated that the number of patients is exceptionally great in the mines where the air temperature is high and that the quality of the water used for sprinkling is a matter of importance, for in the mines where water of good quality is supplied the disease is less prevalent than in those where the ground water is used. It has therefore been suggested that the sprinkling of the mines should be quite discontinued until the epidemic has ceased.

Post-graduate Instruction Free of Charge.

Post-graduate study has been much extended during recent years and has undergone various developments which are in the interest of the medical profession. Post-graduate courses of instruction for which fees had to be paid have for a long time been a feature of almost every German university, but as they were held only during the university vacations and were rather expensive the attendance was not large and consisted chiefly of medical men who could afford to leave their practices for several weeks. Civilian medical men therefore felt themselves to be placed at a disadvantage as compared with the medical officers of the army who had the benefit of post-graduate instruction provided for them free of charge by the army medical department, and the civilians have long been desirous that similar facilities should be open to them. The first step in this direction was taken in the year 1900 when a series of lectures on tuberculosis and its modern treatment were delivered in Berlin, chiefly with a view

to popularise and support the movement in favour of sanatoriums. These lectures were a great success, so that in the autumn another series were delivered on venereal diseases. No fees were payable for attendance on these lectures, which were delivered under the auspices of the Government by professors, *privat-docents*, and other specialists. About the same time similar lectures were delivered in various universities and some of the larger towns and everywhere met with the approval of the medical profession. In 1901 a central committee was formed in Berlin for the purpose of organising gratuitous post-graduate courses on a greater scale throughout Prussia. This committee, of which Professor von Bergmann is the chairman, has now instituted such courses in 23 towns and has, moreover, acquired a collection of medical books, tables, pathological specimens, microscopes, and instruments to be used in connexion with the lectures, and especially to be lent to the local committees in small places where such means of instruction are not sufficiently available. This collection was exhibited a few months ago in Berlin and is well supplied with the necessary material, a good deal of which has been presented to the committee by hospitals, clinics, and other medical institutions. A building will be erected in Berlin to serve as the headquarters of the organisation in Prussia; it will contain lecture rooms, laboratories, rooms for the storage of the collection of objects already mentioned, and offices for various purposes. In memory of the late Empress Frederick, who always took a great interest in the subject of post-graduate instruction for medical men, the building will be called the Empress Frederick House for Post-graduate Training. The Emperor recently received Professor von Bergmann, the chairman of the committee, the Minister of Public Instruction being also present, and His Majesty then expressed complete approval of the plans of the committee.

March 9th.

EGYPT.

(FROM OUR OWN CORRESPONDENT.)

Acute Febrile Jaundice (? Weil's Disease).

DR. VALASSOPOULO of Alexandria prepared an interesting report upon this disease for the Cairo Medical Congress which he has since published. The disease is practically never seen in Cairo and most other parts of Egypt, but it is found every year in Alexandria either as an epidemic in certain parts of the town or as producing sporadic cases. It begins in the month of April and disappears about September. The specific organism of relapsing fever (spirochæta Obermeieri) has never been found in these cases, and though it is obvious that the disease belongs to the infectious group and must be microbic, the specific microorganism has not yet been discovered. While mentioning other microbes Dr. Valassopoulo only cursorily refers to Jaeger's bacillus proteus fluorescens. He wishes the disease to be called "typhus bilieux" or "ictère infectieux fébrile." He believes that the fever is undoubtedly caused by the bad drainage system of Alexandria, and points out that the disease was unknown in that city until 1870, one year after the paving and drainage of the streets was begun; also that the quarters of the town most infected are exactly the lowest, where the drains remain full of sewage because there is not sufficient fall, and in the summer months because there is no rain to flush them. It is noteworthy that the fever has disappeared from one small street since the drain has been changed for the better and also that the fever is never found in the suburbs of the town which are neither paved nor drained. It is suggested that flies may convey the poison from the drains to the surface soil and to food. Dr. Valassopoulo believes, after studying the fever for 25 years, that it is not contagious, for though treated in the general wards of the hospital it has never spread to other patients or to nurses. As it is generally stated in European text-books that the disease is confined to workmen and butchers, I may mention that in Alexandria there have been several cases among bankers, merchants, lawyers, and medical men. The statistics at the Greek Hospital for the last ten years show that only nine women but 144 men were attacked, while during the whole 25 years not a single child under 15 years had the disease; it is also rare after the age of 40 years. Dr. Valassopoulo firmly believes that the disease is not the same as the "bilious typhoid" which Griesinger described in Cairo, for this seems to have been a form of relapsing fever, but that the Alexandria fever is exactly analogous to that described in Europe as Weil's disease. He strongly recommends the municipality of Alexandria to devote money for a proper drainage system of the town to drive out this disease as has already been done at Nauplia in Greece. At Smyrna this disease has been known for about 100 years, but at Nauplia there is only a record of a serious epidemic in 1886, when during the space of four months 185 people were attacked out of the 4500 inhabitants. In both of these towns the disease is believed to be due to imperfect drainage and the fever is chiefly confined to the lower parts of the town where the drainage system is at its worst. The incubation of the disease must be short, for there are several cases on record of healthy people being attacked two or three days after they reached Alexandria. The onset is sudden and often ushered in by rigor and rise of temperature to 102° or 104° F., accompanied by vomiting, general pains, and albuminuria, with injected conjunctivæ, insomnia, and enlarged painful liver. The jaundice does not begin until three or four days later, the urine then diminishes rapidly in quantity, and there are epistaxis, hæmatemesis, or petechiæ of the skin. As the patient convalesces the quantity of urine is increased to eight or even 10 pints in the 24 hours, and after the twenty-first day the temperature becomes normal, the jaundice disappears, and there is no important symptom left except great weakness. Very mild cases, however, begin their convalescence as early as the eleventh day. At the necropsy of fatal cases, besides dark liquid blood and general congestion everywhere, there are well-marked petechiæ in the small intestine, colon, kidney, and sometimes in other organs. The mortality is about 32 per cent. in the Greek Hospital and probably much more outside. Death takes place between the sixth and eighth day of the disease from cardiac weakness or from uræmia. Dr. Kartulis of Alexandria does not believe that the bilious typhoid fever of his city is identical with Weil's disease, of which he has seen cases in Germany. His own statistics of the mortality of the former disease are 60 per cent., which contrasts strangely with the German mortality of from 2 to 4 per cent. in Weil's disease. Alexandria has not a complete monopoly of this interesting malady for Dr. Legrand has published two cases at Suez and Dr. F. M. Sandwith recognised five cases in Cairo in 1899.

Typhoid Fever.

Sporadic cases of typhoid fever still occur every winter in Cairo and Alexandria, generally in English families where the greatest precautions are taken to prevent it. The water can hardly be the cause, but it is fair to suspect the milk-supply because the dairies are not yet under any Government supervision. Professor Chantemesse of Paris during his recent visit to Cairo drew the attention of physicians here to his method of treating the disease by anti-typhoid serum. He compared 1478 cases treated in 15 Paris hospitals during the last two years by cold bathing and ordinary symptomatic treatment, which gave a mortality of 19·3 per cent., with 186 cases treated at his hospital during the same time with only 3·7 per cent. of deaths. The only difference in the treatment was that he used serum in addition to cold bathing and other means. The serum does not, however, prevent perforation, for death occurred in three of his cases from this complication. He is extremely anxious to inaugurate one necessary reform in Paris, which he was pleased to find already existing in Cairo, that typhoid fever cases should be treated in special wards and not in general wards with too careless disinfection of excreta. Dr. T. Courmont of Lyons claims to have discovered the bacillus of Eberth in the blood of typhoid fever patients, even when the Widal reaction is not positive. In 33 cases he has now found it at times varying from the fifth day to the twentieth day, but he has never found it in any patient later than the third week. The method is simplicity itself, a culture is made of from two to four cubic centimetres of suspected blood in from 300 to 500 cubic centimetres of broth. A positive report can generally be given in 24 or 48 hours, but it is not safe to give a negative report until the fifth day of the culture.

Antipyrin.

Dr. Gonzalez Alvarez of Madrid praises highly antipyrin for diseases in hot countries and suggests that it should be tried to kill worms in the body such as bilharzia and filaria. He insists on the harmlessness of large doses such as 120 grains per day and states that even doses of 300 grains only produce deep sleep.

Cairo, Feb. 22nd.

Obituary.

WILLIAM HENRY CROSSE, M.D. DURH., M.R.C.S. ENG., L.F.P.S. GLASG., L.S.A.,

LATE PRINCIPAL MEDICAL OFFICER, ROYAL NIGER COMPANY.

IT is with deep regret that we record the death of Dr. W. H. Crosse, late principal medical officer of the Royal Niger Company, which took place at his residence, 37, Albemarle-street, W., on Feb. 24th. For many years past he had been in indifferent health, advancing emphysema, chronic bronchitis, an enormously hypertrophied spleen, and never absent œdema of the legs—souvenirs of his nine years' sojourn on the West Coast of Africa—being among the factors that rendered the latter years of his life a veritable battle against Atropos. The attack of bronchitis which proved fatal began on Feb. 14th and, in spite of careful nursing and the ministrations of his friends, Dr. W. Hale White, Mr. Charters J. Symonds, and Mr. E. Reynolds Ray, rapidly overpowered him. Increasing dyspnœa, only temporarily relieved by a copious venesection, rendered his sufferings terrible to witness. This was followed by three or four days' complete unconsciousness and the end came on Tuesday morning, Feb. 24th.

The son of the Rev. Marlborough Crosse, William Henry Crosse was born in Norfolk in 1858. He entered at Guy's Hospital as a student in 1878, passing out three years later with the L.S.A. qualification, to engage in general practice in Cubitt Town, Isle of Dogs. Here he rapidly built up an extensive and lucrative connexion, which, however, he relinquished five years later in order to return to Guy's Hospital to obtain further experience and to take out additional qualifications. In 1886, having obtained the Membership of the Royal College of Surgeons, he joined the Royal Niger Company of England and proceeded to the West Coast as its medical officer. Here he remained on active service for a period of nine years, taking part in all the expeditions (for which he received the Company's active service medal) and permitting himself but very little leave, although he suffered severely from malaria and had at least three attacks of blackwater fever. His duties during this time were many and diverse and as he often jokingly remarked, "W. H. C. embodied in himself the various offices of principal medical officer, governor of the gaol, chief justice of the peace, agent, machine gunner, and, *in posse* at any rate, lord high executioner." All along the coast he made a name for himself that is remembered with love and affection, men recognising him as a friend and brother and one to whom they could turn for sound advice and ready help. In 1895 Dr. Crosse returned to London, when the urgent representations of his friends persuaded him to relinquish his post (the directors of the Niger Company, however, retaining him as their London medical adviser) and to settle in practice in London, which he did first in Half Moon-street and then in Dover-street, Piccadilly, from which latter address he only moved last year to the house in Albemarle-street which he occupied at the time of his death.

His work-a-day habits were so methodical that in spite of failing health the cares and worries of practice were insufficient to occupy his mind completely. Hence his restless and indomitable energy and almost boyish enthusiasm prompted him again to turn to preliminary studies and hospital work, with the result that in 1900 he took the M.D. degree of the University of Durham. Of Dr. Crosse it might truly be said that he was always a student and his was a familiar figure not only in the post-mortem rooms but also in the laboratories of Guy's and Charing-cross Hospitals, where his keen interest and extensive acquaintance with the clinical aspect of malaria and other tropical diseases stimulated him to examine critically the many diagnostic aids advocated from time to time by many research workers. He was a recognised authority on blackwater or hæmoglobinuric fever and his contributions on this disease to the Pathological and Epidemiological Societies were of real importance and practical value. The paper read by him before the Epidemiological Society was published in THE LANCET of March 25th, p. 821, and April 1st, 1899, p. 885, while he contributed another admirable paper on the Histology and Prevention of Blackwater Fever to our columns which, with a coloured illustration, appeared in THE LANCET of Jan. 6th, 1900, p. 11. His death at the comparatively early age of 45 years leaves a void that, so far as his intimate friends are concerned, can never be filled.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The following gentlemen having passed the necessary examination and conformed to the by-laws have been admitted Members of the College:—

Ernest Beadon Dixon Adams, St. Bartholomew's Hospital; William Munro Anderson, L.D.S. Eng., Charing Cross Hospital; Ernest Edward Argles, St. Mary's Hospital; Walter Seymour Armstrong, St. George's Hospital; Oliver Francis Haynes Atkey, King's College Hospital; George Washington Badgerow, M.B. Toronto, Toronto University and University College Hospital; Frederic Barker, Medical Department, University of Birmingham; Charles John Battle, St. Thomas's Hospital; Kenneth Harold Beverley, University College and Royal Infirmary, Bristol; Frederick Michael Bishop, St. Bartholomew's Hospital; William Frederick Box, Guy's Hospital; David Bridges, Charing Cross Hospital; Henry Neville Burroughes, B.A. Camb., Cambridge University and St. Bartholomew's Hospital; Arthur Robertson Brailey, B.A. Camb., and Stanley Child, B.A. Camb., Cambridge University and Guy's Hospital; Norman Carpmael, St. Thomas's Hospital; Victor Albert Chatelain, London Hospital; William Henchman Cole, Guy's Hospital; Herbert Ernest Corbin, B.Sc. Lond., St. Mary's Hospital; Philip Claude Tresilian Davy, University College Hospital; William Henry Dickinson, Cambridge University, Liverpool, and St. George's Hospital; Robert Donald, M.A., B.Sc. New Zeal., University of New Zealand and London Hospital; Norman Edwin Dunkerton, King's College Hospital; Daniel Cyril Evans, University College, Cardiff, and St. Bartholomew's Hospital; Francis William Fawssett, Guy's Hospital; Charles Breame Fowler, Aberdeen University and Charing Cross Hospital; John Douglas Hope Freshwater, Cambridge University and St. George's Hospital; William Thomas Frizzell, M.B. Toronto, Toronto University and University College Hospital; George Brittan Gill, Bristol, Durham, and Westminster Hospital; Walter Leigh Mackinnon Goldie, St. Mary's Hospital; Peter Gow, University of New Zealand and Middlesex Hospital; Archibald Montague Henry Gray, University College Hospital; Thomas Guthrie and Walter Lidwell Harnett, B.A. Camb., Cambridge University and St. Thomas's Hospital; Gustav Hamel, C.V.O., M.D. Bern, Kiel, Berlin and Bern Universities; Arthur Francis Hamilton and Thomas Henry Harker, St. Bartholomew's Hospital; Philip William Hamond, Guy's Hospital; William Trengweath Harris, L.S.A. Lond., and Lionel Swinton Hooper, St. Thomas's Hospital; Norman George Harry and Arthur George Harvey, Cambridge University and Middlesex Hospital; Henry William John Hawthorn, L.D.S. Eng., Medical Department, Birmingham University; Geoffrey Seccombe Hett, University College Hospital; Thomas Lewis Ingram, Cambridge University and London Hospital; William James Deacon Inness, St. Mary's Hospital; Alfred William Iredell, Guy's Hospital; Ivor Davenport Jones, Middlesex Hospital; Henry Michael Joseph, B.A. Camb.; B.Sc. Lond., Cambridge University and Charing Cross Hospital; Rustamjee Manekjee Kalapesi, L.M. & S. Bombay, Grant Medical College, Bombay; Henry Wynyard Kaye, B.A. Oxon., Oxford University and London Hospital; Kenneth Harrison Alloa Kellie, Cambridge University and St. George's Hospital; Ernest Henry Kenterdine, Medical Department, University of Birmingham; Henry Ratcliffe Kidner, B.Sc. Lond., St. Bartholomew's Hospital; Ronald Outram Lee, B.A. Cantab., Cambridge University and Middlesex Hospital; Robert Robinson Lewis, Middlesex Hospital; Allan Douglas Low and Nelson Low, St. Mary's Hospital; Godfrey Holland Latham, Charles de Zouche Marshall, and Albert Francis Miskin, St. Thomas's Hospital; Samuel Harvey McCoy, B.A., M.B. Toronto, Toronto University; Henry Richmond Minkley, St. Mary's Hospital; Robert Vernon Geraud Monckton, St. Bartholomew's Hospital; Archibald Trevor Moon, London Hospital; David Morrow, L.S.A. Lond.; Queen's College, Belfast, and Middlesex Hospital; Stanley Parkes Mummery, L.D.S. Eng., St. George Hospital; Henry Bailey Mylvâganam, L.M. & S. Ceylon, Ceylon Medical College and London Hospital; John Sherwood New, University College Hospital; Eugene Joseph O'Neill, M.B., Ch.B. New Zeal., Otago University, New Zealand; Edward Daniel Parsons, St. Thomas Hospital; Charles Burnage Penny, Guy's Hospital; Arthur Pick, M.D. Germany, M.D. Austria, Breslau University; Egerton Llewellyn Pope, B.A. Kingston, Canada, M.D., C.M. McGill, University of McGill College, Montreal, and University College Hospital; James Houston Porter, London Hospital; John Llewelyn Pritchard, Royal Infirmary, Liverpool and Glasgow; George Herbert Richard, St. Mary's Hospital; Edmund Arthur Roberts, King's College Hospital; Lorne Forbes Robertson, B.A., M.D., C.M., McGill University of McGill College, Montreal; John Norman Robins, M.A. Camb., Cambridge University and London Hospital; Thomas Rose, Middlesex Hospital; Christopher Wilfred Sharpley, Yorkshire College and General Infirmary, Leeds; Walter Stansfield, Owens College and Royal Infirmary, Manchester; James Batson Stephens, St. Mary's Hospital; Edward Franz Adolf Stharner, M.D. Leipzig, Leipzig University; Walter Mersh Strong, M.A. Camb., Cambridge University and St. Thomas's Hospital; Leonard Robert Tosswill, St. Bartholomew's Hospital and Devon and Exeter Hospital; Eugene Dunbar Townroe, St. George's Hospital; Charles William Turner, Durham University, Owens College, and Royal Infirmary, Manchester; John Charles Velenski, M.D., B.S. Durh., Durham University, St. George's, and University College Hospital; Vernon Montague Wallis, Guy's Hospital; John Wells, Medical Department, University of Birmingham; Alfred Landon Walter Whitehouse, L.D.S. Eng., Westminster Hospital; Fielding Charles Whitmore, Dublin, University College and Royal Infirmary, Bristol; Charles William Tuthill Woods, Cambridge University and St. George's Hospital; and Harry George Keith Young, B.A. Camb., Cambridge University and Middlesex Hospital.

UNIVERSITY OF CAMBRIDGE.—At the Congregation held on March 7th the following degrees were conferred:—

M.D.—L. C. P. Phillips, Caius.
M.B. and B.C.—J. F. H. Dally, St. John's; and J. M. Twentyman, Christ's.
M.B.—J. W. Wharton, St. John's; and T. St. C. Smith, Trinity Hall.

Dr. Anningson and Professor Sims Woodhead have been appointed University delegates to the Congress of the Royal Institute of Public Health to be held at Liverpool in July.—Dr. S. West has been appointed an examiner in medicine in the place of Professor Greenfield and Mr. G. E. Wherry an examiner in surgery in the place of Mr. E. B. Owen.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.—At a meeting of the President and Fellows of the College held on March 6th Mr. Owen Gilmore, L.R.C.P. & S. Edin., &c., was admitted a Licentiate in Midwifery of the College.

ROYAL INSTITUTION.—The Friday evening discourse at the Royal Institution on March 6th was delivered by Professor J. G. McKendrick of Glasgow University, the subject being Studies in Experimental Phonetics. A short account was given of the various methods that have been employed for obtaining graphic records of sounds, especially the Edison phonograph, and curves traced on long slips of glass by such means were shown on the screen as lantern pictures. Professor McKendrick said that the vowels owed their special quality to the resonance of the primary laryngeal tone creating mouth tones which were added to the laryngeal tone or might even overpower it. In the production of consonantal sounds such as *p*, *b*, or *m*, the form of the vowel curve, whatever the vowel might be, was modified by the manner in which the lips were either opened or closed in uttering the various sounds.

THE CARNEGIE TRUST FOR THE UNIVERSITIES OF SCOTLAND.—The second annual meeting of the Carnegie trust was held on Feb. 23rd at the Westminster Palace Hotel, London, Lord Elgin presiding. The report of the executive committee for the year 1902 stated that in August, 1902 the King had been pleased to grant a royal charter of incorporation whereby "the Carnegie trustees for the Universities of Scotland" were constituted one body corporate and politic. Orders had been given for the making of a common seal to be used as the charity directed. At a meeting of trustees held in July, 1902, a recommendation of the executive committee was adopted, in consideration of which the executive committee would during the season 1902-03 continue to accept the examinations qualifying for admission to the various Faculties at the universities with a view to graduation, but after due notice publicly given an approximately uniform test of preliminary education would be applied to all beneficiaries of the Carnegie trust at as early a date as possible. The committee approved and adopted a scheme of allocation for five years of an annual grant of £40,000 as from Jan. 1st, 1903. The scheme, which is described in Appendix A of the report, besides making a contribution of £100,000 to buildings and permanent equipment and of £20,000 to libraries, would at the close of the period of five years have increased the resources for teaching in the four universities by permanent endowments amounting to £70,500, while at the same time it would have made during those five years an addition of £1900 a year to the income of two of them. A common scheme dealing with the institution of scholarships, fellowships, and grants had been established, the administration of which would be retained in the hands of the committee. The nominations and applications under this scheme would be referred to an advisory board, consisting of the chairman, the four representatives of the universities, and three other members of the trust. Details of the regulations for those scholarships, fellowships, and grants had now been made public. With regard to the payment of fees, there had been paid by the trust for the summer session, 1902, the sum of £11,976 13*s.*, on behalf of 1595 students, representing the fees of 4522 classes; and for the winter session 1902-03 the sum of £28,275 5*s.*, on behalf of 2367 students, representing the fees of 8806 classes—making in all, for the year ending Dec. 31st, 1902, the sum of £40,251 18*s.* The committee realised the danger of applicants demanding class fees without proper consideration of the number and subjects of classes applied for. A student might apply for the fees of more classes than he could properly attend, or for the fees of a haphazard choice of classes which had no educational relation to each other, or, again, for the fees of re-attendance upon classes because of an unsatisfactory attendance previously. The committee consequently had drawn up regulations which it hoped would place a check upon indiscriminate claims in relation to the payment of class fees. More detailed information with reference to the administration of the trust is to be found in the seven appendices to the report.

THE AFTER-CARE ASSOCIATION.—The annual meeting of the members of the After-Care Association, of which Princess Christian is patroness and the Earl of Meath is president, was held at the house of Sir William Church and Lady Church on March 4th. The chief objects of this association are to facilitate the readmission of poor persons discharged as recovered from lunatic asylums into social life (1) by obtaining for them when needful an interval of change of scene and air under proper care and supervision; (2) by giving them grants of money and clothing; and (3) by assisting them to obtain suitable employment. The annual report stated that the work of the association had again been most encouraging. During the past 12 months there had been 221 cases (149 those of women and 72 those of men) before the council, whereas in 1901 the number was 214. The income had increased to £772, but an appeal was made for increased funds to meet increased weekly payments for maintenance.

THE TRAINING OF PLUMBERS.—An indenture or agreement of apprenticeship framed by the Plumbers' Apprenticeship Board of London has been adopted in substance by the National Association of Master Plumbers and the United Operative Plumbers' Association of Great Britain and Ireland as well as by the London Master Builders' Association. The material points of agreement are: (1) the art of sanitary plumbing taught under the indenture is defined as "technical knowledge of water fittings and other sanitary appliances and skill to construct and adjust the same in such manner as to prevent the contamination of air or water in dwelling houses or other buildings by emanations from drains and sewers"; (2) the apprentice is required to attend approved evening classes of technical instruction; and (3) to attend periodical examinations in technical knowledge and workmanship during the term, the final examination qualifying for registration by the Plumbers' Company or any statutory body established for maintaining a national register of plumbers in the public interest. The form has been adapted to the requirements of Scotch law. Thus, the modern method of technical training will be assimilated to the old system of apprenticeship.

INSTITUTE OF CHEMISTRY.—The twenty-fifth annual general meeting of this institute was held on March 2nd, Professor John Millar Thomson, LL.D., F.R.S., the President, being in the chair. In his address the President described how the growing appreciation of the science of analytical chemistry from the utilitarian point of view, led to the necessity for an organisation for maintaining a standard of qualification on the part of analytical and consulting chemists. The real origin of the institute was a suggestion put forward in 1872 by the late Sir Edward Frankland at a dinner given to Professor Cannizzaro on his appointment as Faraday lecturer. Later, in 1876, he proposed to the council of the Chemical Society that a class of Fellows to be styled Licentiates (or some analogous title) should be created for the purpose of distinguishing between competent professional chemists and those who professed an interest in chemistry as a science and not as a means of earning a livelihood. The idea was not adopted, but it was decided to found a new society, the Institute of Chemistry being formally incorporated under the Companies Act on Oct. 2nd, 1877. Among those active in founding the institute were Mr. Carteighe, Professor Hartley, the late Mr. Frederick Manning, Mr. C. Tookey, and the late Dr. Alder Wright. Professor Thomson himself was also a keen worker for the institute in its earliest history. He proceeded to relate its progress under the successive presidents: Sir Edward Frankland, Sir Frederick Abel, Dr. William Odling, Dr. James Bell, C.B., Professor W. A. Tilden, Dr. W. J. Russell, F.R.S., and Dr. Thoma Stevenson. He dealt with the regulations as to training and examination of candidates for the associateship of the institute, showing how the standard of the requirements for membership had been steadily raised, and he commented on the consequent increasing recognition of the qualifications "A.I.C." and "F.I.C." by Government and municipal authorities and by the leaders of industry throughout the kingdom.

THE LONDON HOSPITAL.—The general court of governors was held at the London Hospital on March 4th, when the Hon. Sydney Holland presided. The report stated that during the last year 13,160 in patients were treated, in addition to 162,147 out-patients. The number of children under 12 years of age who were treated as in-patients was 3499, while 1404 Hebrews were treated as in-patients with due observance of their religious scruples. The total expenditure on the maintenance and management of the hospital was £87,550, whilst the extraordinary expenditure amounted to £92,239. Of this extraordinary expenditure about £3000 constitute a certain expenditure which is sure to recur every year and therefore may be considered as ordinary expenditure, making the total of the ordinary expenditure over £90,000. The ordinary income has amounted to £65,700, and in addition there has been a grant from the King Edward's Hospital Fund of £8500, and the legacies which have been received during the year amounted to £3,641. All of these legacies had to be used to meet current expenditure. The hospital is making this year a special quinquennial appeal for funds to carry on the work during the ensuing five years. It is estimated that £167,000 more must be spent on the improvement scheme which is being carried out, and for this sum an appeal is made, whilst to place the hospital on a sound financial basis an increase of at least £25,000 per annum in ordinary subscriptions and donations is necessary. Mr. Ernest W. Morris was appointed secretary to the governors in the room of Mr. G. Q. Roberts who has retired.—In response to the Lord Mayor's appeal on behalf of the hospital the following donations, among others, have been received or promised: The Grocers' Company and the Clothworkers' Company, £1000 each; Sir Horace Brooks Marshall, £262 10s.; the Capital and Counties Bank (Limited), £250; Messrs. Bass, Ratcliffe, and Gretton (Limited) and Messrs. I. and R. Morley, £105 each; Messrs. Clark, Wilson, and Co., £10 10s.; Messrs. C. Tennant, Sons, and Co., £52 10s.; Messrs. Price and Peirce, £100; Messrs. D. and W. Murray (Limited) and Messrs. A. Barsdorf and Co., £10 each; Messrs. Twiss and Brownings and Messrs. Coutts and Co., £10 10s. each; Messrs. Bulloch and Co., £52 10s.; Messrs. F. Giesler and Co., £10; Messrs. Jacob Waller and Co., £21; Hon. Mrs. Farquhar, £20; Mr. J. A. Davis, £10 10s.; Mrs. Louisa A. Ferguson, £5; the London and Edinburgh Shipping Company and Mr. P. W. De Keyser, £52 10s. each; and De Keyser's Royal Hotel Company (Limited), £25. Further donations should be sent to the Lord Mayor at the Mansion House.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 4TH.

Employment of Children Bill.

The HOME SECRETARY introduced his promised Bill to make better provision for regulating the employment of children and he had the gratification of being complimented by both sides of the House. In 1901 his predecessor appointed a committee to inquire into the question and the Bill, he explained, is based on the recommendations of the committee. It proposes to give powers to county and borough councils to make by-laws for regulating the employment of children by prescribing the age below which employment is illegal, by prescribing the hours between which it is illegal, and by prohibiting the employment of children in certain specified occupations which may be shown to be dangerous either to health or to morals. The by laws will not apply to children already protected in their employment by the Factory Acts or the Mines Acts or to children over 12 years of age who in pursuance of the Education Acts are wholly exempted from obligation to attend school. The Bill also gives power to make by-laws for the regulation of street-trading under the age of 16 years and the prohibition of such labour under the age of 11 years. It will apply to Scotland as well as to England. In the course of the discussion the Home Secretary was strongly urged not to allow the proposals to be whittled down.

Sale of Adulterated Butter.

The text of the Bill which Mr HANBURY introduced to amend the law with regard to the sale of adulterated butter has been printed. It provides that (1) it shall be unlawful to manufacture, to sell, to expose for sale, or to import any butter or butter mixture containing more than 20 per cent. of water and every person who manufactures, sells, exposes for sale, or imports any butter or butter mixture which contains more than that percentage shall be liable on summary conviction to the penalties imposed by Section 4 of the Margarine Act, 1887, as amended by Section 17, Subsection 2, of the Sale of Food and Drugs Act, 1899; and that (2) the provisions of the Sale of Food and Drugs Act, 1875 to 1899, relating to margarine shall apply to any article to which this section applies but subject to the following provisions: (*a*) the expression "adulterated butter" shall be substituted for the expression "margarine" on any brand, mark, label, or wrapper required by the provisions applied by this Act and for all other purposes of those provisions; (*b*) section 8 of the Sale of Food and Drugs Act, 1899 (which restricts the amount of butter fat in margarine), shall not apply. The Bill applies to butter to which any substance has been added whereby the amount of water in the butter is increased, but not to the article known as Irish salt firkin butter or to margarine as defined by the Margarine Act, 1887. Any water in excess of the proportion prescribed for genuine butter by the regulations in force for the time being under Section 4 of the Sale of Food and Drugs Act, 1899, which is found in any butter or butter mixture shall, for the purposes of this section, be deemed to be due to the addition of some substance unless it is proved to be due to the ordinary process of making butter.—The Bill was very well received.

THURSDAY, MARCH 5TH.

Applecross Medical Officer.

Mr. WEIR asked the Lord Advocate, in view of the fact that applications are invited for the appointment of medical officer and vaccinator for the Applecross district of the parish of Applecross, Ross-shire, would care be taken that the medical officer appointed possessed the Public Health Diploma required under the Public Health Act, 1897?—The LORD ADVOCATE replied: No such diploma is required for the appointment in question, which has already been made.

Report of Poisons Committee.

Colonel LOSS asked the First Lord of the Treasury whether his attention had been drawn to the report of the departmental committee of the Privy Council in Schedule A of the Pharmacy Act, 1868; and whether, in view of its effect on agriculture, the Government proposes to bring in a Bill to give effect to its recommendations.—Mr. BALFOUR replied: The report is under consideration with a view to legislation at the earliest opportunity.

Treatment of Harmless Lunatics.

Mr. HAMMOND asked the Chief Secretary to the Lord Lieutenant of Ireland, having regard to the restrictions placed upon boards of guardians in Ireland in the treatment of harmless lunatics, if he would favour the proposal for the assimilation of the law in Ireland to that in Scotland, under which it is practicable to have these persons boarded and cared for in the homes of the peasantry.—Mr. WYNDHAM replied: The question of making better provision for the treatment of harmless lunatics in Ireland is receiving consideration.

Uncertified Deaths.

Mr. CORBIE GRANT asked the Secretary of State for the Home Department whether he would state the number of uncertified deaths in England and Wales during 1897, 1898, 1899, 1900, and 1901, in completion of the figures given by Sir M. W. Ridley on May 24th, 1897.—Mr. AKERS-DOUGLAS replied: The numbers of deaths of which the causes were not certified are as follows: 1897, 11,103; 1898, 10,441; 1899, 10,745; 1900, 11,257; and 1901, 9986. The matter is dealt with on p. xxix. of the Registrar-General's report for 1902. The figures for 1901 represent slightly under 2 per cent. of all registered deaths.

Infectious Diseases in Ross and Cromarty.

Mr. WEIR asked the Lord Advocate, in view of the fact that the report of the South-western District Committee for Ross and Cromarty, dated 26th July last, shows that there were cases of typhoid fever and other infectious diseases in the district during the year which necessitated the closing of three public schools for periods varying from three weeks to two months, whether he could now state the cause of the outbreak and what steps had been taken to prevent a recurrence of fever?—The LORD ADVOCATE replied: The medical officer is unable to state the cause of the outbreak. He assures the Local Government Board that the affected houses have been cleansed and disinfected as carefully as possible.

TUESDAY, MARCH 10TH.

Spread of Small-pox.

Sir JOSEPH LEESE asked the President of the Local Government Board whether the attention of the Local Government Board had been called to the outbreak of small-pox in many of the large centres of population of Lancashire and Yorkshire and to the fact that the spread of the disease from town to town had been invariably found to be caused by persons of the tramp class; and whether the Board intended taking any, and if so what, action with the view of controlling or licensing the movements of persons of the tramp class as a precaution against the spread of small-pox and other infectious diseases.—Mr. LONG: I am quite aware of the outbreak of small-pox in the districts mentioned by the hon. Member. I do not think that the spread of the disease from town to town has been invariably caused by persons of the class referred to, but I am fully alive to the risk of diffusion of small-pox by this means. I am not in a position to take action of the kind contemplated in the last part of the question; but I last month issued a circular letter to boards of guardians drawing attention to the danger of infection being conveyed by tramps and urging them to secure as far as practicable the vaccination or revaccination of all persons relieved in the vagrant wards and to cause a daily medical inspection of all the inmates. I am also advising the sanitary authorities of the districts concerned, through the medical inspectors of my department, as to the adoption of all practicable precautions against the spread of small-pox from this source.

Army Medical Service.

Mr. BRODRICK, in introducing the Army Estimates for the year, made reference to the reorganisation of the Army Medical Department. He congratulated the public and the service on having obtained the assistance of those distinguished civilian medical and surgical experts who constituted the Advisory Board and stated that he had placed upon this board the responsibility of selecting candidates for the Royal Army Medical Corps, of examining the condition of home and foreign hospitals, and of carrying out the great changes which were proposed in the Army Medical Department. At the first examination for the Royal Army Medical Corps there were three times as many candidates as vacancies and the candidates, he was informed, were of a very high class. The right hon. gentleman also explained the steps which have been taken for establishing and carrying on the Medical Staff College at Millbank and for encouraging members of the Royal Army Medical Corps to engage in special work, particularly sanitary work. He said that courses of lectures on sanitation had been started at Woolwich, at Sandhurst, and at the staff colleges in the various districts. The principle of selection by merit had been established in the Royal Army Medical Corps. Names, he said, were submitted to the Advisory Board

for scientific merit, promotion was given, and every effort was being made to bring up to date the medical and surgical equipment. With regard to hospitals, he proposed instead of the elaborate machinery by which different branches of the War Office had hitherto dealt with hospitals, one with the building and another with the equipment, to have a small committee, with a civilian member of the Advisory Board and a member of the Royal Army Medical Corps, in order to hand over to it, in conjunction with the Financial Secretary to the War Office, the whole administration of these services, in order to secure continuity and to bring the whole question as far as possible up to date. The right hon. gentleman also referred to the new footing on which army nursing had been placed.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

BARCLAY, W. BOWIE, L.R.C.P. & S. Edin., D.P.H. Viet., has been appointed Medical Officer of Health for Farnborough (Hants) Urban District Council.

BRISCOE, WILLIAM THOMAS, A.B., M.D., M.Ch. Dub., has been appointed Medical Officer of Health for the Chippenham Urban District.

COPE, RICARDO, M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon at the Rotherham Hospital and Dispensary.

CROOKS, JAMES, M.D., C.M. Toronto, L.R.C.S. Edin., L.S.A., has been appointed Medical Officer of Health for Chard.

DALBY, AUGUSTUS WILLIAM, L.R.C.P., L.R.C.S. Edin., has been appointed Medical Officer of Health for the Frome (Somerset) Rural District Council.

DUNLOP, THOMAS, M.B., C.M. Edin., D.P.H. Cantab., has been appointed Medical Officer of Health for Torquay.

HOULING, JOHN HENRY, L.S.A. Lond., has been appointed Medical Officer of Health for the Bideford (Devon) Rural District.

JOHNSON, HENRY SANDFORD, M.R.C.P. Irel., L.F.P.S. Glasg., has been appointed Medical Officer of Health for the Totnes (Devon) Rural District Council.

KEIR, WILLIAM INGRAM, F.R.C.S., L.R.C.P. Edin., has been re-appointed Medical Officer of Health for Melksham, Wilts.

KELLY, C. E. M., M.D. Lond., has been appointed Certifying Surgeon under the Factory Act for the Witney District of the County of Oxford.

MILES, U. W. N., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory Act for the Bewdley District of the County of Worcester.

MURRAY, JAMES, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory Act for the Allendale District of the County of Northumberland.

PARSONS, J. FREDERICK, M.R.C.S. Eng., L.S.A. Lond., has been re-appointed Medical Officer of Health for the Frome (Somerset) Urban District.

SPROTT, A., M.B., C.M. Glasg., has been appointed Certifying Surgeon under the Factory Act for the Appleby District of the County of Westmoreland.

WADE, REGINALD, M.R.C.S. Eng., L.S.A. Lond., has been appointed Medical Officer of Health for the Highbridge (Somerset) Urban District.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ADDENBROOKE'S HOSPITAL, Cambridge.—Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

ALDERSHOT URBAN DISTRICT COUNCIL.—Medical Officer of Health. Salary £300 per annum.

BIRMINGHAM GENERAL HOSPITAL.—Assistant Obstetric Officer.

BRACEBRIDGE ASYLUM, near Lincoln.—Junior Assistant Medical Officer (female), unmarried. Salary £125, with apartments, board, attendance, &c.

BRISTOL, ROYAL VICTORIA HOMES (INEBRIATE REFORMATORY), Brentry.—Superintendent. Married and total abstainer. Salary £400 per annum.

BURY COUNTY BOROUGH.—Assistant to the Medical Officer of Health for six months. Salary at rate of £60 per annum with board and residence.

CENTRAL MIDWIVES BOARD.—Secretary. Salary £300 a year.

DERBY BOROUGH ASYLUM.—Assistant Medical Officer. Salary £120 per annum, with board and washing.

DUBLIN, TRINITY COLLEGE.—Professor of Anatomy.

ESSEX AND COLCHESTER HOSPITAL.—Honorary Physician.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—Medical Radiographer. Honorarium £25 per annum.

GLASGOW EYE INFIRMARY.—Resident Assistant House Surgeon. Salary £75, with apartments and board.

GLOUCESTER GENERAL INFIRMARY AND GLOUCESTERSHIRE EYE INSTITUTION.—Assistant House Surgeon for six months. Remuneration at rate of £30 per annum, with board, residence, and washing.

HOSPITAL FOR DISEASES OF THE SKIN, Stamford-street, Blackfriars, S.E.—Clinical Assistant.

HOSPITAL FOR WOMEN, Soho-square.—Clinical Assistants.

HUDDERSFIELD INFIRMARY.—Junior House Surgeon. Salary £60 per annum with board, residence, and washing.

LIVERPOOL MILL-ROAD INFIRMARY.—Assistant Medical Officer, unmarried. Salary £120 per annum, with board and apartments.

LONDON LOCK HOSPITAL, Soho.—House Surgeon. Salary £30 per annum, with board, lodging, and washing.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—House Surgeon (non-resident). Honorarium at rate of £50 per annum.

MANCHESTER MONSALL FEVER HOSPITAL.—Fourth Medical Assistant. Salary £100 per annum, with board, lodging, and washing.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Parkplace, Cheetham Hill-road.—House Surgeon. Salary £80 per annum, with apartments and board.

MANCHESTER, OWENS COLLEGE.—Junior Demonstrator in Physiology. Salary £100, rising to £150 per annum.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Physician (salary at rate of £40 per annum), House Surgeon (salary at rate of £40 per annum), Assistant House Physician (salary at rate of £20 per annum), and Assistant House Surgeon (salary at rate of £20 per annum). All tenable for six months. Also an Anæsthetist. Honorarium 25 guineas per annum.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury.—Junior House Physician. Salary £50, with board and apartments.

NEW HOSPITAL FOR WOMEN, Euston-road.—Anæsthetist (female).

NORTH-EASTERN HOSPITAL FOR CHILDREN, Hackney-road, N.E.—Resident Medical Officer. Salary £120 per annum, with board, residence, and washing.

NORTH RIDING INFIRMARY, Middlesborough-on-Tees.—Assistant House Surgeon, unmarried.

OXFORD, WARNEFORD ASYLUM.—Assistant Medical Officer. Salary £100, with board, &c.

PRESTON ROYAL INFIRMARY.—Assistant House Surgeon. Salary £60 per annum, with board, lodging, washing, &c.

ROTHERHAM HOSPITAL AND DISPENSARY.—Assistant House Surgeon. Salary £80 per annum.

ROYAL BERKSHIRE HOSPITAL.—Assistant House Surgeon for six months. Salary £60 per annum, with board, lodging, and washing.

ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Ventnor.—Assistant Resident Medical Officer, unmarried. Salary £100 per annum, with board and lodging.

ROYAL ORTHOPÆDIC HOSPITAL.—Resident House Surgeon and Registrar, unmarried, for six months. Salary £100 per annum, with board and washing.

ST. GEORGE'S HOSPITAL, S.W.—Dental Surgeon. Also Assistant Dental Surgeon.

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent Garden, W.C.—House Surgeon for six months. Salary at rate of £100 a year, with board, lodging, and washing.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Anæsthetist. Honorarium £20 per annum. Also Clinical Assistants.

SUSSEX COUNTY HOSPITAL.—House Physician, unmarried. Salary £80 per annum, with board and residence.

TIVERTON, DEVONSHIRE, INFIRMARY AND DISPENSARY.—House Surgeon. Salary £80 and all found.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, Newcastle-upon-Tyne.—Lecturer on Ophthalmology.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Physician for six months. Honorarium of £25, with board and lodging.

WALSALL AND DISTRICT HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with apartments, board, and laundry.

WESTMINSTER GENERAL DISPENSARY.—Resident Medical Officer. Salary at rate of £120 per annum, with rooms, gas, coal, and attendance.

WEST RIDING ASYLUM, Wakefield.—Assistant Medical Officer. Salary £140, rising to £160, with apartments, board, washing, and attendance.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Crosshills in the West Riding of the County of York.

Births, Marriages, and Deaths.

BIRTHS.

BROCK.—On March 4th, at 77, Fellows-road, S. Hampstead, N.W., the wife of J. H. E. brock, M.D., F.R.C.S., of a son.

JOY.—On March 4th, at Bradfield, near Reading, the wife of Norman H. Joy, M.R.C.S., L.R.C.P. Lond., of a daughter.

NAPIER JONES.—On March 4th, at Crowthorne, Berks, the wife of Philip Napier Jones, M.R.C.S., L.R.C.P. Lond., of a son.

DEATHS.

ENNECCERUS.—On the 20th February, at Coblenz, Rhein, suddenly, while under chloroform inhalation, Amy Margaret, aged 21, the beloved wife of Wilhelm Victor Enneccerus, Oberleutnant und Landwehr-Bezirks, Adjutant, Coblenz, only daughter of Charles Hoar, M.B., C.M., of Robertsbridge, Sussex, and grand-daughter of the late Augustus Waller, M.D., F.R.S.

WIGAN.—On Feb. 15th, at Portishead, Somerset, George C. H. Wigan, M.D., aged 82.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A QUESTION OF ETHICS.

To the Editors of THE LANCET.

SIRS,—You state that when a practitioner is called to "supersede his professional brother it is his duty to ascertain that the former medical adviser has been properly informed that his services are not longer required." From the above I presume that a medical man is justified in taking on a case where another man is *at the time* in attendance, provided the patient has sent him notice that he is not longer required. May I express my utter astonishment if this is so? I have been in practice 20 years and during this time have been frequently sent for by patients whom other medical men have been attending and told that the other medical man has been written to and, in some cases, paid. I have always positively declined unless I met the man in attendance in consultation and then the patient can decide whom he wishes to have. The reason I give for doing this is that we medical men are not shopkeepers or tradesmen whom the public can as they think run from one to another without us first meeting in consultation. I have always been under the impression that a medical man taking on a case where another is in actual attendance without first meeting him commits a gross breach of medical etiquette.

I am, Sirs, yours faithfully,

March 7th, 1903. A COUNTRY PRACTITIONER.

*** Our reply to our correspondent's previous letter referred to particular points in that letter. It did not lay down general rules; and general rules cannot be laid down to meet all conceivable situations. "A Country Practitioner's" deductions from our words are quite wrong. The view which utterly astonishes him has never been expressed by us; nor do we understand how a man can be at the same time "in attendance" and "not longer required." Of course, it is far preferable that the superseding practitioner should do so with the full approval of the previous practitioner and after a consultation with him, but sometimes these desirable circumstances cannot be obtained. It is common to find that the first medical attendant will not discuss amicably the patient's case with the second medical attendant; and we wonder whether "A Country Practitioner," if he were the superseded practitioner, would be willing to do so. Members of the medical profession have to look after the health of the public. If a patient declines absolutely to see A and asks to see B, what is B to do if (1) there is no other medical attendant in the neighbourhood but himself and A, or if (2) he is assured that, whether he, B, attends the case or not, A will not be asked to attend again? In our view B must attend the patient. The situation is a regrettable one, but it is B's public duty to visit the sick. Certainly, he should attempt to adjust the matter amicably with A, both in the interests of the patient and of the medical profession. It is good for the patient that B should be made aware of symptoms discovered by and treatment employed by A and it is good for the medical profession that there should be no bickering over such matters. But if A will not meet B what is to be done? Our correspondent, in a covering letter, says that he has seen books on medical etiquette taking a considerably different view to ours, but those books have not come into our hands. We thoroughly approve of the high professional attitude which he takes up, but we must point out to him that in certain cases the attitude is unpractical. When a patient has decided to make a change of medical attendants the situation must be dealt with as one which the patient has every right—however foolish the action—to bring about.—ED. L.

FRACTURED PATELLA.

To the Editors of THE LANCET.

SIRS,—Allow me to bring under notice a very ready and effective means of treating ordinary fractures of the patella, when to resort to hooks, pins, or wires can only be considered meddlesome unless in severe cases, or those that have been neglected, with extensive inflammation or suppuration, more especially in debilitated or strumous subjects where the joint requires to be opened. The quadriceps extensor femoris is relaxed in the ordinary way and the parts are disinfected, then a strip of Leicester or Johnson's plaster is taken at least one inch wide and two yards in length, is fixed firmly over the head of the tibia and encircled below the knee twice; then it is carried up over the external lateral ligament, so as to bind down the upper and outer portion of the bone to secure the quadriceps muscle and tendons, binding it down over the inner portion. Over this an ordinary gauze bandage is applied in the same way and it is passed over the cap so as to compress the injured surfaces level. The parts being thus thoroughly secured the bandage is passed over to an assistant and having at hand a piece of sheet lead already prepared—i.e., about seven inches square, the central portion carefully cut out with exactness from the opposite bone, reversed, trimmed, and bevelled to avoid uneven surface or projection of cut edges—this is applied to encase the cap. Again, the bandage is taken and secured by a few more turns, the back splint is put on, and the operator finishes up with what bandage he has left. Subsequent treatment such as lead and opium lotion, glyco-gelatin, plaster-of-Paris, &c., can be used without disturbance.

These accidents, although rare, require very prompt treatment and vary greatly with regard to age and constitution in gravity, and as all the requirements I mention can be readily carried in the surgical bag without apparent increase of bulk the means are at hand to facilitate immediate action in emergency for the relief of the patient, whilst it gives both temporarily and permanently a satisfactory result, as the metal frame does not yield like leather and should not allow displacement to show deformity by ill-matched ligamentous union.

Of course, all injuries to joints may be more or less complicated with pain, inflammation, synovitis, or suppuration; it is therefore very necessary daily to note these conditions.

I am, Sirs, yours faithfully,

Burslem, Feb. 24th, 1903. G. T. MOCKETT.

LYING ADVERTISEMENTS.

A CORRESPONDENT sends us a page from *Answers* of Feb. 14th, 1903. The page is page i. of the supplement and contains an advertisement of the usual lying type concerning an electro-galvanic belt. The advertisers are A. M. Richardson and Co. They give a testimonial from Dr. Archer Farr, L.R.C.P., L.S.A., L.F.P. & S.G., five years Medical Officer of Health, Lambeth, London, who writes under date Jan. 2nd, 1903. Curiously enough we are unable to find Mr. Archer Farr's name in the Medical Register for 1902, although it is in the Medical Directory for the current year. Possibly Mr. Archer Farr does not know of the use which is being made of his name. In the Medical Directory his address is given as Bath House, Putney. On referring to Kelly's Suburban Directory we were, however, unable to find the name of Archer Farr. That gentleman would do well to dissociate himself from a firm such as that of Messrs. A. M. Richardson who send out a filthy pamphlet entitled, "Important Facts for Men Only."

LIFE INSURANCE OFFICES AND FEES FOR MEDICAL EXAMINATIONS.

To the Editors of THE LANCET.

SIRS,—I should be glad if you will advise me whether it is usual or reasonable for a life assurance company to require its medical referee to make *re-examinations* gratuitously. Having examined a candidate and advised unfavourably against him I was called upon in a month's time to make another examination not certainly less searching than the first, and I am now refused any fee for this second examination. The initial fee was 10*s.* 6*d.* for a £200 assurance.

I am, Sirs, yours faithfully,

March 7th, 1903. LIVE AND LET LIVE.

*** Assurance companies vary in their treatment of their medical referees. Seeing how tiny the fee was for the original examination we should have thought a second fee might well have been paid. There are no definite rules.—ED. L.

EXPECTORATION OF A TOOTH 13 MONTHS AFTER INHALATION INTO THE LUNG.

To the Editors of THE LANCET.

SIRS,—I have read Dr. W. E. Carnegie Dickson's notes on the above case in THE LANCET of Feb. 28th, p. 584, with great interest, but think it was a great pity that the x rays were not called in to help the diagnosis even though it was thought to be a case of early phthisis, because it is very probable that the true condition of affairs would by this means have been made apparent. From my experience of x rays in pulmonary diseases, I feel sure that if all suspicious cases were examined by the screen and then photographed pulmonary tuberculosis would be discovered in many instances before the ordinary physical signs denoted its presence, and that many cases in which the stethoscope revealed only a slight amount of mischief would by this method of examination be found to be more extensively involved.

Now that early diagnosis of pulmonary tuberculosis is of such vital importance to the individual and to the community such a valuable aid to its diagnosis as the x rays should always be made use of.

I am, Sirs, yours faithfully,

Lincoln, March 6th. STANLEY GREEN.

A FORMALDEHYDE INHALER.

To the Editors of THE LANCET.

SIRS,—Under the above heading in THE LANCET of Feb. 21st, p. 562, there is described "a simple appliance" for the inhalation of formalin, but whether it is intended for use in an institution or as an article to be used anywhere and everywhere the writer of the paragraph does not say. It may be all right to sit or to lie about in the wards of a sanatorium with a zinc muzzle over the mouth and nose, but one could hardly call it "simple" if intended for wear while walking in the street. Neither is the prescription "simple." Surely it is scarcely wise to put into the hands of what must often be an ignorant public a mixture which contains a fourth part pure chloroform to be used for inhaling "six or seven hours a day and even at night"—unless it is with the idea of increasing the work of coroners. I quite agree with the writer that formalin is "a very important aid in the treatment of pulmonary tuberculosis," and also I would add of other diseases of the lungs, but why not use it simply with water, with which it is perfectly miscible? Personally I use one part formalin and two parts water and the simple inhaler I use is the glass sponge-tube of a Godfrey's chloride of ammonium inhaler, breathing in by the

mouth and out by the nose, thus bathing the whole of the respiratory tract in formalin vapour. Such a simple inhaler with the small end of the tube drawn out to a mouthpiece and a movable cap to fit the lower end anyone could carry in the pocket and use frequently during the day, and it ought to be produced at such a price as to be within the reach of any poor person. I would say always use the original brand of normal formalin, prepared by the Formalin Hygienic Company, as when practising in London I met with samples made by the chemists by whom they were sold the odour of which was anything but pleasant after standing a few days. This I have never found with the original. A drug is sometimes condemned altogether by a bad specimen.

I am, Sirs, yours faithfully,

Ryde, Feb. 24th, 1903. J. MILLER.

TESTIMONIALS TO PROPRIETARY MEDICINES.

IN the advertising pages of the Parish Magazine of St. Botolph's, Bishopsgate, appears an advertisement dealing with a preparation alleged to be prepared by Messrs. John Morgan Davis and Sons. The preparation is called Phosphorised Quinine and its virtues are extolled in a testimonial headed 2, Elphinston-road, Hastings, and signed by G. C. Kernot, Ph.D., L.R.C.S., L.S.A. Lond., &c. We are unable to find Mr. Kernot's name in either the Medical Register or the Medical Directory. If Mr. Kernot be dead we consider that Messrs. John Morgan Davis and Sons should supply the date of Mr. Kernot's letter, and if he be alive we think that he had better have his name placed on the Register and refrain from eulogising proprietary preparations.

"A FAIR MAID OF FEBRUARY."

"FLOWERS," said Emerson, "are a proud assertion that a ray of beauty outvalues all the utilities of man." The lady who signs herself "Snowdrop" in the following letter which has been addressed to the medical officer of a metropolitan dispensary acts in accordance with the quotation. She proudly asserts that the vulgar routine of sanitation as generally understood should give place to her crankiness. A more comical mixture of impudence and ignorance we have seldom read.

"Fulham, London, S.W.
Jan., 1903.

At the request of your guides we write to ask you to use natural and curative agency in your Hospitals such as natural and pure diet (fruit and hot fruit drinks can eradicate disease and maintain strength) curative colours curative clothing hot baths and bathing. All drugs, operations, impure food and drink (flesh foul fish and Alcohol) are forbidden in the spirit world, therefore, against GOD's laws and a healthy soul and body—Black came into the world through evil agency is against—GOD's—divine laws and is to be abolished from our earth—Your guides earnestly pray that you will help us in these important matters and at their earnest request we must tell you that all vaccinators will be punished in this or the spirit world as most disease is due to the dirt, and poison of vaccine. Yours faithfully,

SNOWDROP."

"Snowdrop's" mental attitude is that of many worthy people, but they are usually able to express it in a less ridiculous manner.

DEGREES FOR MEDICAL PRACTITIONERS.

A CORRESPONDENT writes: "I have had frequent occasions of studying the various causes which induce students to take collegiate licences instead of university degrees. In most cases I found that the college curriculum had been entered upon in entire ignorance of the relative value of licences and degrees. An announcement in the *Irish Times* of Feb. 28th under the heading, 'Medical Students' Guide,' must continue to foster misconception in the minds of would be students. The announcement referred to states that the Royal College of Surgeons in Ireland is issuing gratuitously to any one sending for it a copy of their Students' Guide: 'How to become a Doctor.' The publication is an advertisement to induce pupils to take out the licence of that body under the Irish Conjoint Board and obviously will be taken as an orthodox guide by students, parents, guardians, and others, to the proper mode of qualifying. The students forthwith, in consequence, may enter and pass the Conjoint preliminary examination and thus be committed to a course leading to licences instead of degrees—a course which in 99 cases out of 100 is irretraceable." Our correspondent concludes: "'How to become a Licentiate in Surgery' would be less open to objection than that referred to if it were really necessary for the College to advertise its qualifications."

A QUERY.

To the Editors of THE LANCET.

SIRS,—Could any of your readers tell me what books are now recommended to be read for the M.D. State Medicine London University, especially in Mental Physiology?

I am, Sirs, yours faithfully,

March 3rd, 1903. HOUSE SURGEON.

COLD PRESSURE AS A TREATMENT FOR LUPUS.

To the Editors of THE LANCET.

SIRS,—Can any of your readers tell me if cold pressure alone has been tried as a treatment for lupus and if there is any reason why it should not be tried? I am, Sirs, yours faithfully,

March 9th, 1903. McC. W.

THE THREECIS PLUG.

THIS is a little device supplied by the Threecis Plug Company, 3, Cross-lane, St. Mary-at-Hill, London, E.C. It consists of a small sponge plug fitted with a perforated tin cover. The plug is to be fitted into the bottom of a pipe and it can be easily removed for cleaning. It certainly prevents moisture from getting into the mouth but in the experience of various members of our staff to whom we submitted a plug for trial it gives the tobacco smoke an unpleasant taste. The advertisement says: "The Threecis plug becomes a household word to smokers as soon as they have tried it." Perhaps; but sometimes a household word is short, emphatic, and uncomplimentary.

An Enquirer.—The amount to be paid depends entirely upon the evidence of the value of the practice. A well-established practice, or a share in such where appointments are secure and competition not likely to prove damaging, is worth two years' purchase. The purchaser of a share in a practice usually obtains a better introduction to the practice and a better guarantee that it will not decline in value than the purchaser of a whole practice.

Surgeon.—As a rule, medical men holding British diplomas and degrees can practise in Canada on obtaining a licence from the Provincial Medical Boards. They must, however, be registered, and the fees vary from £2 to £20, according to the province selected.

W. H. C.—The man is a well-known money-lender.

ERRATUM.—The mover of the vote of thanks to Sir Michael Foster for presiding at the conference on March 3rd on the Supply of Rural Midwives was Colonel Long, M.P., and not Lord Camoys as reported in our account of the proceedings.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (16th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (5.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (17th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (5.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.) London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat Golden-square (9.30 A.M.), Soho-square (2 P.M.).

WEDNESDAY (18th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M).

THURSDAY (19th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (5.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat, (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (20th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (5.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.).

SATURDAY (21st).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (16th).—MEDICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—9 P.M. Dr. H. Radcliffe Crocker: The Conditions which Modify the Characters of Inflammations of the Skin, and their Influence on Treatment. Lecture III.—Principles of Treatment. (Lettsomian Lecture.)

TUESDAY (17th).—CHELSEA CLINICAL SOCIETY (Jenner Institute of Preventive Medicine, Chelsea-gardens, Grosvenor-road, S.W.).—8.30 P.M. Annual Clinical Debate on Diabetic and Non-Diabetic Glycosuria in which Dr. H. Mackenzie, Dr. Hutchison, and Dr. V. Poore will take part.

WEDNESDAY (18th).—ROYAL METEOROLOGICAL SOCIETY (Institution of Civil Engineers, Great George-street, S.W.).—7.30 P.M. Lecture:—Mr. C. V. Boys: The Passage of Sound through the Atmosphere (illustrated by Experiments and lantern slides).

BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M. Discussion on the Dietetic Factor in Health Resort Treatment (introduced by Dr. Mouillot, Harrogate).
SOCIETY OF ARTS (John-street, Adelphi, W.C.).—8 P.M. Mr. W. Schooling: New Aspects of Life Assurance.

THURSDAY (19th).—HARVEIAN SOCIETY OF LONDON (Stafford Rooms, Titchborne-street, Edgware-road, W.).—8.30 P.M. Clinical Evening. Cases will be shown by Dr. S. Phillips, Dr. W. J. Harris, Dr. L. Guthrie, Mr. Jaffrey, and others.

FRIDAY (20th).—SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN (11, Chandos-street, Cavendish-square, W.).—5.30 P.M. Clinical Cases will be shown. Papers:—Dr. H. Ashby and Mr. S. Stephenson: On a Form of Acute Amaurosis in Infancy following Convulsions.—Mr. H. T. Curtis: A Case of Congenital Parosteal Sarcoma arising in connexion with the Acromion Process of the Left Scapula removed from a boy aged 5½ months.
EPIDEMIOLOGICAL SOCIETY (11, Chandos-street, Cavendish-square, W.).—8 P.M. Council Meeting. 8.30 P.M. Paper:—Dr. L. Parkes: The Prevention of Diphtheria Outbreaks in Hospitals for Children.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (16th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. Galloway: Clinique. (Skin.) 5.15 P.M. Dr. F. J. McCann: Cancer of the Uterus.
POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Russell: Mesiantinal Disease.

TUESDAY (17th).—ROYAL COLLEGE OF PHYSICIANS OF LONDON (Pall Mall East).—5 P.M. Dr. A. S. F. Grünbaum: Theories of Immunity and their Clinical Application. (Goulstonian Lecture.)
MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. R. L. Bowles: Clinique. (Medical.) 5.15 P.M. Mr. S. Stephenson: The Ophthalmoscope as an Aid to General Diagnosis.
POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Robinson: Pelvic Pain.
NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury).—3.30 P.M. Dr. Batten: Congenital Cerebellar Ataxy.
HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—3 P.M. Dr. P. Horton-Smith: Arrested Pulmonary Tuberculosis.

WEDNESDAY (18th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. A. H. Tubby: (Clinique. (Surgical.) 5.15 P.M. Dr. G. Rankin: Neurasthenia, the Wear and Tear of Life.
POST GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. S. Taylor: Rheumatism and Allied Affections.

THURSDAY (19th).—ROYAL COLLEGE OF PHYSICIANS OF LONDON (Pall Mall East).—5 P.M. Dr. A. S. F. Grünbaum: Theories of Immunity and their Clinical Application. (Goulstonian Lecture.)
MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. W. H. A. Jacobson: Clinique. (Surgical.) 5.15 P.M. Dr. F. Calger: The Treatment of Enteric Fever.
POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Keetley: On Fractures in and near the Elbow and Wrist Joints.
THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Dr. Poynton: Clinical Evidences of Damage to the Myocardium in Rheumatic Fever.
NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4 P.M. Clinical Lecture:—Mr. R. P. Brooks: Demonstration of Cases of Ophthalmoscopic Interest.

FRIDAY (20th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. H. Tilley: Clinique. (Ear.) 5.15 P.M. Mr. T. P. Legg: Injuries of the Head and Neck. III.
POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Reece: Some Factors of Infection.
ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—9 P.M. Prof. E. A. Schäfer: The Paths of Volition.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

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Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE INDEX to Vol. II. of 1902, which was completed with the issue of Dec. 27th, and the Title-page to the Volume, were given in THE LANCET of Jan. 3rd.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 12th, 1903.

Date	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
Mar. 6	30·09	S.W.	0·12	86	51	36	37	38	Fine
,, 7	29·83	S.W.	0·03	68	46	38	43	45	Raining
,, 8	30·20	N.W.	0·21	82	49	37	38	40	Cloudy
,, 9	30·19	S.W.	...	76	50	35	41	43	Overcast
,, 10	29·92	S.W.	0·15	48	46	42	43	44	Raining
,, 11	29·97	S.W.	0·07	86	52	34	35	36	Foggy
,, 12	29·92	S.E.	...	91	54	36	40	41	Foggy

During the week marked copies of the following newspapers have been received: *Irish Truth, Yorkshire Post, Westminster Gazette, Nottingham Guardian, Sussex Daily News, Taunton Gazette, Guernsey Evening Press, Cardiff Echo, Dublin Times, Birmingham Post, Aberdeen Free Press (Weekly), Brighton Gazette, Surrey Advertiser, Notts Guardian, Bristol Mercury, Dublin Express, Bradford Observer, Morning Post, Hereford Mercury, Daily Graphic, Sanitary Record, Local Government Chronicle, Mining Journal, Hertfordshire Mercury, Blackburn Daily Telegraph, Devon Gazette, Halifax Evening Courier, Plymouth Mercury, Dublin Mail, &c.*

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